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This index covers all technical items—papers, correspondence, reviews, etc.—that appeared in this periodical during 2021, and items from previous years that were commented upon or corrected in 2021. Departments and other items may also be covered if they have been judged to have archival value.

The Author Index contains the primary entry for each item, listed under the first author's name. The primary entry includes the coauthors' names, the title of the paper or other item, and its location, specified by the publication abbreviation, year, month, and inclusive pagination. The Subject Index contains entries describing the item under all appropriate subject headings, plus the first author's name, the publication abbreviation, month, and year, and inclusive pages. Note that the item title is found only under the primary entry in the Author Index.

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Dong, X., Song, P., Wang, X., Fan, Q., and Liu, X., Robotic Prototyping of Paper-Based Field-Effect Transistors With Rolled-Up Semiconductor Microtubes; *TMECH Feb. 2021 427-436*
Dong, X., *see* Ba, W., *TMECH Dec. 2021 3010-3021*
Dong, X., *see* Shi, C., *TMECH Dec. 2021 3076-3086*
Du, H., *see* Tu, L., *TMECH Feb. 2021 156-167*
Du, H., Wang, L., Chen, J., Huang, H., and Feng, X., Integral Sliding-Mode Tracking Control for Heavy Vehicle Electrohydraulic Power Steering System; *TMECH June 2021 1455-1466*
Du, L., *see* Liu, X., *TMECH April 2021 1178-1182*
Du, R., *see* Zhong, Y., *TMECH Dec. 2021 2998-3009*
Du, X., Zhang, M., Yu, J., Yang, L., Chiu, P.W.Y., and Zhang, L., Design and Real-Time Optimization for a Magnetic Actuation System With Enhanced Flexibility; *TMECH June 2021 1524-1535*
Du, Z., *see* Wang, H., *TMECH April 2021 1022-1032*
Duan, H., and Zhang, D., A Binary Tree Based Coordination Scheme for Target Enclosing With Micro Aerial Vehicles; *TMECH Feb. 2021 458-468*
Duan, W., *see* Cao, C., *TMECH Dec. 2021 3151-3162*
Duan, X., *see* Birla, M., *TMECH June 2021 1445-1454*
Dumanli, A., and Sencer, B., Data-Driven Iterative Trajectory Shaping for Precision Control of Flexible Feed Drives; *TMECH Oct. 2021 2735-2746*

E

Ebrahimi, A., Alambeigi, F., Sefati, S., Patel, N., He, C., Gehlbach, P., and Iordachita, I., Stochastic Force-Based Insertion Depth and Tip Position Estimations of Flexible FBG-Equipped Instruments in Robotic Retinal Surgery; *TMECH June 2021 1512-1523*
Edmonds, B.P.R., DeGroot, C.T., and Trejos, A.L., Thermal Modeling and Characterization of Twisted Coiled Actuators for Upper Limb Wearable Devices; *TMECH April 2021 966-977*
Egeland, O., *see* Tysse, G.O., *TMECH Feb. 2021 416-426*
Eizad, A., *see* Haghjoo, M.R., *TMECH Feb. 2021 13-23*
Endo, H., *see* Tanabe, T., *TMECH Feb. 2021 203-213*

Erkan, K., *see* Demircali, A.A., *TMECH Dec. 2021 2956-2966*
Escalante, F.M., Jutinico, A.L., Jaimes, J.C., Terra, M.H., and Siqueira, A.A.G., Markovian Robust Filtering and Control Applied to Rehabilitation Robotics ; *TMECH Feb. 2021 491-502*
Eshghi, A.T., *see* Jung, H.J., *TMECH Aug. 2021 1708-1718*
Esteban, E., *see* Olaizola, J., *TMECH Oct. 2021 2418-2428*
Eun, Y., *see* Jeon, H., *TMECH June 2021 1401-1411*

F

Falch, L., and de Silva, C.W., Incorporating the Qualitative Variable Comfort Into the Design of a Wearable Body Sensor System; *TMECH Feb. 2021 124-133*
Fallaha, C., Saad, M., Ghommam, J., and Kali, Y., Sliding Mode Control With Model-Based Switching Functions Applied on a 7-DOF Exoskeleton Arm; *TMECH Feb. 2021 539-550*
Fan, Q., *see* Dong, X., *TMECH Feb. 2021 427-436*
Fan, R., and Li, Y., An Adaptive Fuzzy Trajectory Tracking Control via Improved Cerebellar Model Articulation Controller for Electro-Hydraulic Shovel; *TMECH Dec. 2021 2870-2880*
Fan, W., *see* Dong, M., *TMECH June 2021 1490-1500*
Fang, G., *see* Scharff, R.B.N., *TMECH Aug. 2021 1877-1885*
Fang, J., *see* Shimonomura, S., *TMECH Aug. 2021 2163-2173*
Fang, Z., *see* Liu, S., *TMECH Oct. 2021 2747-2757*
Fantuzzi, C., *see* Ferraguti, F., *TMECH Feb. 2021 276-287*
Farivar, F., Haghighi, M.S., Jolfaei, A., and Wen, S., Covert Attacks Through Adversarial Learning: Study of Lane Keeping Attacks on the Safety of Autonomous Vehicles; *TMECH June 2021 1350-1357*
Fei, R., *see* Xie, G., *TMECH April 2021 633-644*
Feng, X., *see* Du, H., *TMECH June 2021 1455-1466*
Feng, Z., *see* Chen, L., *TMECH Aug. 2021 1951-1959*
Ferraguti, F., Bonfe, M., Fantuzzi, C., and Secchi, C., Optimized Power Modulation in Wave-Based Bilateral Teleoperation; *TMECH Feb. 2021 276-287*
Ferrentino, P., *see* Liu, H., *TMECH Feb. 2021 393-404*
Ficuciello, F., *see* Liu, H., *TMECH Feb. 2021 393-404*
Fischer, G.S., *see* Li, G., *TMECH Feb. 2021 255-266*
Foong, S., *see* Lee, D., *TMECH Aug. 2021 1923-1931*
Fouka, M., Sentouh, C., and Popieul, J., Quasi-LPV Interconnected Observer Design for Full Vehicle Dynamics Estimation With Hardware Experiments; *TMECH Aug. 2021 1763-1772*
Frazelle, C.G., *see* Wang, C., *TMECH April 2021 777-788*
Fu, M., *see* Wang, C., *TMECH April 2021 908-917*
Fu, Z., Pan, J., Spyrakos-Papastavridis, E., Lin, Y., Zhou, X., Chen, X., and Dai, J.S., A Lie-Theory-Based Dynamic Parameter Identification Methodology for Serial Manipulators ; *TMECH Oct. 2021 2688-2699*
Fujie, M.G., *see* Miura, S., *TMECH April 2021 1013-1021*
Fujii, H., *see* Kasahara, J.Y.L., *TMECH Dec. 2021 2826-2834*
Fukuda, T., *see* He, W., *TMECH April 2021 595-599*

G

G. Zhu, G., *see* Pal, A., *TMECH Dec. 2021 3116-3127*
Galdos, L., *see* Olaizola, J., *TMECH Oct. 2021 2418-2428*
Gan, C., Chen, Y., Sun, Q., Si, J., Wu, J., and Hu, Y., A Position Sensorless Torque Control Strategy for Switched Reluctance Machines With Fewer Current Sensors; *TMECH April 2021 1118-1128*
Gangireddy, R., *see* Megalingam, R.K., *TMECH Feb. 2021 288-299*
Gao, H., *see* Kuang, Z., *TMECH Feb. 2021 358-368*
Gao, J., Zhang, Z., and Yan, G., Locomotion Analysis of a Clamper-Based Capsule Robot in a Compliant Tube; *TMECH Feb. 2021 55-65*
Gao, J., *see* Tang, H., *TMECH Feb. 2021 323-334*
Gao, S., Tian, G., Dai, X., Zhang, Q., Wang, Z., Yang, X., Wang, Q., and Jia, N., A Lightweight Wireless Overpressure Node Based Efficient Monitoring for Shock Waves; *TMECH Feb. 2021 448-457*
Gao, S., Mai, J., Zhu, J., and Wang, Q., Mechanism and Controller Design of a Transfemoral Prosthesis With Electrohydraulic Knee and Motor-Driven Ankle; *TMECH Oct. 2021 2429-2439*
Gao, X., *see* Cao, C., *TMECH Dec. 2021 3151-3162*
Gao, Y., *see* Bu, F., *TMECH April 2021 1129-1139*
Gao, Y., Zhang, X., Zhu, C., and Guo, B., Global Parameter Sensitivity Analysis of Electrochemical Model for Lithium-Ion Batteries Considering Aging; *TMECH June 2021 1283-1294*
Garabini, M., *see* Mengacci, R., *TMECH Dec. 2021 3186-3197*
Garcia, P.L., *see* Crispel, S., *TMECH Aug. 2021 1980-1988*
Garcia, R., *see* Simetti, E., *TMECH June 2021 1635-1645*
Garratt, M.A., *see* Tran, V.P., *TMECH Oct. 2021 2306-2315*
Ge, S.S., *see* Liu, X., *TMECH Dec. 2021 2888-2898*
Gehlbach, P., *see* Ebrahimi, A., *TMECH June 2021 1512-1523*
Gerada, C., *see* Bu, F., *TMECH April 2021 1129-1139*
Geraedts, J.M.P., *see* Scharff, R.B.N., *TMECH Aug. 2021 1877-1885*
Gerber, M.J., Hubschman, J., and Tsao, T., Automated Retinal Vein Cannulation on Silicone Phantoms Using Optical-Coherence-Tomography-Guided Robotic Manipulations; *TMECH Oct. 2021 2758-2769*
Ghaffari, A., Analytical Design and Experimental Verification of Geofencing Control for Aerial Applications; *TMECH April 2021 1106-1117*
Ghanta, S., *see* Megalingam, R.K., *TMECH Feb. 2021 288-299*
Ghommam, J., *see* Fallaha, C., *TMECH Feb. 2021 539-550*
Giudice, G.D., Orekhov, A.L., Shen, J., Joos, K.M., and Simaan, N., Investigation of Micromotion Kinematics of Continuum Robots for Volumetric OCT and OCT-Guided Visual Servoing; *TMECH Oct. 2021 2604-2615*
Goldfarb, M., *see* Vailati, L.G., *TMECH Feb. 2021 235-245*
Gomez-Bravo, F., *see* Orozco-Magdaleno, E.C., *TMECH June 2021 1657-1667*
Gonalves, R.S., *see* Venancio, M.M., *TMECH June 2021 1433-1444*
Gong, J., *see* Li, Z., *TMECH June 2021 1339-1349*
Gong, X., Wang, J., Ma, B., Lu, L., Hu, Y., and Chen, H., Real-Time Integrated Power and Thermal Management of Connected HEVs Based on Hierarchical Model Predictive Control; *TMECH June 2021 1271-1282*
Gregg, R.D., *see* Zhu, H., *TMECH Dec. 2021 3104-3115*
Griffith, L.G., *see* Bhushan, B.M., *TMECH Oct. 2021 2362-2372*
Grioli, G., *see* Mengacci, R., *TMECH Dec. 2021 3186-3197*
Gu, D., *see* Wong, C., *TMECH Oct. 2021 2294-2305*
Gu, G., *see* Chen, S., *TMECH Aug. 2021 1745-1753*
Gu, G., *see* Huang, X., *TMECH Dec. 2021 3175-3185*
Gu, J., *see* Chen, H., *TMECH Feb. 2021 469-479*
Gu, S., *see* Chen, G., *TMECH June 2021 1547-1557*
Gu, S., *see* Zhu, H., *TMECH Oct. 2021 2712-2723*
Gu, X., *see* Xiao, X., *TMECH Oct. 2021 2483-2494*
Guan, Y., Zeng, Z., Chen, D., Zhang, T., Zhu, H., and He, L., Kinematic Modeling, Analysis, and Verification of an Essboard-Like Robot; *TMECH April 2021 864-875*
Guan, Y., *see* Zhu, H., *TMECH Oct. 2021 2712-2723*
Guerra, T., *see* Nguyen, A., *TMECH June 2021 1328-1338*
Gundelsweiler, B., *see* Raab, M., *TMECH June 2021 1380-1391*
Guo, B., *see* Gao, Y., *TMECH June 2021 1283-1294*
Guo, C., *see* Dong, H., *TMECH Aug. 2021 2215-2225*
Guo, H., *see* Meng, Q., *TMECH June 2021 1307-1317*
Guo, J., Wang, J., Luo, Y., and Li, K., Takagi–Sugeno Fuzzy-Based Robust $H\infty$ Integrated Lane-Keeping and Direct Yaw Moment Controller of Unmanned Electric Vehicles; *TMECH Aug. 2021 2151-2162*
Guo, K., *see* Xu, Y., *TMECH Aug. 2021 2249-2260*
Guo, P., *see* Zhong, Y., *TMECH Dec. 2021 2998-3009*
Guo, Q., Li, X., Zuo, Z., Shi, Y., and Jiang, D., Quasi-Synchronization Control of Multiple Electrohydraulic Actuators With Load Disturbance and Uncertain Parameters; *TMECH Aug. 2021 2048-2058*
Guo, S., *see* Zhou, Q., *TMECH June 2021 1225-1235*
Guo, X., *see* Zhou, Q., *TMECH June 2021 1225-1235*

H

Haghighi, M.S., *see* Farivar, F., *TMECH June 2021 1350-1357*
Haghjoo, M.R., Lee, H., Afzal, M.R., Eizad, A., and Yoon, J., Mech-Walker:A Novel Single-DOF Linkage Device With Movable Frame for Gait Rehabilitation; *TMECH Feb. 2021 13-23*
Han, D., *see* Wang, T., *TMECH April 2021 1183-1188*

Han, L., Wang, H., Liu, Z., Chen, W., and Zhang, X., Vision-Based Cutting Control of Deformable Objects With Surface Tracking; *TMECH Aug. 2021 2016-2026*
Han, Q., *see* Wang, J., *TMECH Feb. 2021 311-322*
Handroos, H., *see* Malysheva, J., *TMECH Oct. 2021 2385-2395*
Hang, P., *see* Huang, C., *TMECH April 2021 611-620*
Hangai, S., *see* Sariyildiz, E., *TMECH Aug. 2021 2139-2150*
Harada, N., *see* Shen, Y., *TMECH Oct. 2021 2350-2361*
Harischandra, P.A.D., *see* Cenev, Z., *TMECH Aug. 2021 1932-1940*
Hashem, R., Stommel, M., Cheng, L.K., and Xu, W., Design and Characterization of a Bellows-Driven Soft Pneumatic Actuator; *TMECH Oct. 2021 2327-2338*
Hata, N., *see* Kato, T., *TMECH Oct. 2021 2451-2461*
Hayashi, S., *see* Chun, P., *TMECH Dec. 2021 2835-2844*
He, C., *see* Ebrahimi, A., *TMECH June 2021 1512-1523*
He, G., *see* Li, J., *TMECH June 2021 1591-1601*
He, J., *see* Zhou, W., *TMECH Aug. 2021 1773-1781*
He, L., *see* Wang, Y., *TMECH April 2021 719-729*
He, L., *see* Guan, Y., *TMECH April 2021 864-875*
He, S., *see* Tang, H., *TMECH Feb. 2021 323-334*
He, W., Li, Z., Meurer, T., Antonelli, G., Kaynak, O., and Fukuda, T., Guest Editorial Focused Section on Mechatronics in Unmanned Systems; *TMECH April 2021 595-599*
Hegeman, R., *see* Sefati, S., *TMECH Feb. 2021 369-380*
Hei, X., *see* Xie, G., *TMECH April 2021 633-644*
Helian, B., Chen, Z., Yao, B., Lyu, L., and Li, C., Accurate Motion Control of a Direct-Drive Hydraulic System With an Adaptive Nonlinear Pump Flow Compensation; *TMECH Oct. 2021 2593-2603*
Hendrich, N., *see* Ahlers, D., *TMECH Aug. 2021 1886-1894*
Hill, T.L., *see* Cao, C., *TMECH Dec. 2021 3151-3162*
Hithiksha, K., *see* Vikrant, K.S., *TMECH April 2021 798-806*
Ho, Y., *see* Liu, C., *TMECH Aug. 2021 1828-1836*
Hoang, P.T., *see* Phung, H., *TMECH Oct. 2021 2495-2505*
Holley, J., *see* Thomas, G.C., *TMECH Feb. 2021 586-591*
Hong, S., Jang, K., Kim, S., and Park, J., Regularized Hierarchical Quadratic Program for Real-Time Whole-Body Motion Generation; *TMECH Aug. 2021 2115-2126*
Hong, Z., *see* Liu, L., *TMECH Aug. 2021 2080-2091*
Hori, M., *see* Takeyama, T., *TMECH Dec. 2021 2881-2887*
Hossain, N.A., Yamomo, G.G., Willing, R., and Towfighian, S., Characterization of a Packaged Triboelectric Harvester Under Simulated Gait Loading for Total Knee Replacement; *TMECH Dec. 2021 2967-2976*
Hosseinabadi, A.H.H., and Salcudean, S.E., UltraLow Noise, High Bandwidth, Low Latency, No Overload 6-Axis Optical Force Sensor; *TMECH Oct. 2021 2581-2592*
Hosseini, M., *see* Rodriguez, A.S., *TMECH Oct. 2021 2791-2802*
Hou, C., *see* Liu, F., *TMECH Feb. 2021 113-123*
Hou, J., *see* Shao, S., *TMECH April 2021 689-699*
Hou, J., *see* Chen, G., *TMECH June 2021 1547-1557*
Hu, C., *see* Yang, W., *TMECH Feb. 2021 246-254*
Hu, C., *see* Wang, Z., *TMECH Oct. 2021 2274-2284*
Hu, L., *see* Deng, Z., *TMECH June 2021 1295-1306*
Hu, X., *see* Ivanov, V., *TMECH June 2021 1195-1200*
Hu, X., *see* Deng, Z., *TMECH June 2021 1295-1306*
Hu, X., *see* Liu, K., *TMECH Dec. 2021 2944-2955*
Hu, Y., *see* Zhao, B., *TMECH April 2021 943-954*
Hu, Y., *see* Gan, C., *TMECH April 2021 1118-1128*
Hu, Y., *see* Gong, X., *TMECH June 2021 1271-1282*
Huang, C., Lv, C., Hang, P., and Xing, Y., Toward Safe and Personalized Autonomous Driving: Decision-Making and Motion Control With DPF and CDT Techniques; *TMECH April 2021 611-620*
Huang, H., *see* Tu, L., *TMECH Feb. 2021 156-167*
Huang, H., *see* Cai, C.J., *TMECH June 2021 1678-1688*
Huang, H., *see* Du, H., *TMECH June 2021 1455-1466*
Huang, J., *see* Cao, Y., *TMECH Feb. 2021 574-585*
Huang, J., *see* Li, L., *TMECH Feb. 2021 24-32*
Huang, J., *see* Li, L., *TMECH June 2021 1700*
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Huang, P., *see* Chen, L., *TMECH Dec. 2021 2922-2931*
Huang, Q., *see* Li, Q., *TMECH April 2021 679-688*
Huang, R., *see* Li, J., *TMECH June 2021 1591-1601*
Huang, T., *see* Cao, L., *TMECH Feb. 2021 480-490*
Huang, T., *see* Song, Y., *TMECH Dec. 2021 2986-2997*
Huang, W., Zhao, J., Yu, G., and Wong, P.K., Intelligent Vibration Control for Semiactive Suspension Systems Without Prior Knowledge of Dynamical Nonlinear Damper Behaviors Based on Improved Extreme Learning Machine; *TMECH Aug. 2021 2071-2079*
Huang, X., Zou, J., and Gu, G., Kinematic Modeling and Control of Variable Curvature Soft Continuum Robots; *TMECH Dec. 2021 3175-3185*
Huang, Y., Wang, F., Li, A., Shi, Y., and Chen, Y., Development and Performance Enhancement of an Overactuated Autonomous Ground Vehicle; *TMECH Feb. 2021 33-44*
Huang, Y., Chen, Y., Zhang, X., Zhang, H., Song, C., and Ota, J., A Novel Cable-Driven 7-DOF Anthropomorphic Manipulator; *TMECH Aug. 2021 2174-2185*
Huang, Y., *see* Zhang, C., *TMECH Aug. 2021 2226-2236*
Huber, L., *see* Shokrollahi, P., *TMECH Oct. 2021 2616-2628*
Hubschman, J., *see* Gerber, M.J., *TMECH Oct. 2021 2758-2769*
Huo, X., Wang, B., Chen, S., and Chen, W., Sensorless Unbalance Diagnosis of Affiliated Rotating Chamber Based on Driving Current of Permanent Magnet Synchronous Motor; *TMECH Dec. 2021 2899-2909*
Hutter, M., *see* Raab, M., *TMECH June 2021 1380-1391*
Hwang, D., *see* Lee, J., *TMECH Aug. 2021 1820-1827*
Hwang, D., *see* Lim, B., *TMECH Aug. 2021 1728-1736*
Hwang, D., *see* Jang, N., *TMECH Aug. 2021 1867-1876*
Hwang, S., Chin, J., and Lim, M., Design Process and Verification of SPMSM for a Wearable Robot Considering Thermal Characteristics Through LPTN; *TMECH April 2021 1033-1042*
Hwang, S.T., *see* Jung, H.S., *TMECH April 2021 1002-1012*
Hwu, E., *see* Liao, H., *TMECH April 2021 1172-1177*
Hynninen, V., *see* Cenev, Z., *TMECH Aug. 2021 1932-1940*
Hyung, S., *see* Lee, M., *TMECH Feb. 2021 191-202*

I

Ibrahim, K., *see* Xiong, J., *TMECH Dec. 2021 3211-3220*
Iizuka, A., *see* Takeyama, T., *TMECH Dec. 2021 2881-2887*
in het Panhuis, M., *see* Tawk, C., *TMECH April 2021 876-887*
Ino, S., *see* Tanabe, T., *TMECH Feb. 2021 203-213*
Iordachita, I., *see* Sefati, S., *TMECH Feb. 2021 369-380*
Iordachita, I., *see* Ebrahimi, A., *TMECH June 2021 1512-1523*
Iturrospe, A., *see* Olaizola, J., *TMECH Oct. 2021 2418-2428*
Ivanov, V., Lv, C., Boulon, L., Hu, X., and Ongel, A., Guest Editorial: Focused Section on Mechatronics in Road Mobility Systems; *TMECH June 2021 1195-1200*
Iwata, H., *see* Tanabe, T., *TMECH Feb. 2021 203-213*
Iwata, H., *see* Kamezaki, M., *TMECH Dec. 2021 2857-2869*

J

Jaimes, J.C., *see* Escalante, F.M., *TMECH Feb. 2021 491-502*
Jamil, B., and Choi, Y., Modified Stiffness-Based Soft Optical Waveguide Integrated Pneumatic Artificial Muscle (PAM) Actuators for Contraction and Force Sensing; *TMECH Dec. 2021 3243-3253*
Jang, I., *see* Lee, S.J., *TMECH April 2021 765-776*
Jang, K., *see* Hong, S., *TMECH Aug. 2021 2115-2126*
Jang, N., Lee, M.W., and Hwang, D., A Suction-Based Peripheral Nerve Gripper Capable of Controlling the Suction Force; *TMECH Aug. 2021 1867-1876*
Jayanth, G.R., *see* Vikrant, K.S., *TMECH April 2021 798-806*
Jeon, H., Song, J., Lee, H., and Eun, Y., Modeling Quadrotor Dynamics in a Wind Field; *TMECH June 2021 1401-1411*
Jeon, W., Chakrabarty, A., Zemouche, A., and Rajamani, R., Simultaneous State Estimation and Tire Model Learning for Autonomous Vehicle Applications; *TMECH Aug. 2021 1941-1950*

Jeong, S., and Chwa, D., Sliding-Mode-Disturbance-Observer-Based Robust Tracking Control for Omnidirectional Mobile Robots With Kinematic and Dynamic Uncertainties; *TMECH April 2021 741-752*
Jeong, U., *see* Kim, B., *TMECH Dec. 2021 2932-2943*
Ji, J., *see* Zhang, Y., *TMECH June 2021 1668-1677*
Ji, W., *see* Xie, G., *TMECH April 2021 633-644*
Jia, M., *see* She, D., *TMECH Oct. 2021 2440-2450*
Jia, N., *see* Gao, S., *TMECH Feb. 2021 448-457*
Jia, Z., *see* Ma, J., *TMECH April 2021 730-740*
Jiang, B., *see* Ma, Y., *TMECH April 2021 1161-1171*
Jiang, C., *see* Xie, H., *TMECH Feb. 2021 515-526*
Jiang, D., *see* Guo, Q., *TMECH Aug. 2021 2048-2058*
Jiang, N., Zhang, S., Xu, J., and Zhang, D., Model-Free Control of Flexible Manipulator Based on Intrinsic Design; *TMECH Oct. 2021 2641-2652*
Jiang, W., *see* Pang, X., *TMECH Aug. 2021 2027-2037*
Jiang, Y., *see* Wu, J., *TMECH June 2021 1369-1379*
Jiang, Y., *see* Li, F., *TMECH Oct. 2021 2676-2687*
Jiang, Z., *see* Xia, J., *TMECH Oct. 2021 2803-2813*
Jiao, S., *see* Tan, Q., *TMECH April 2021 621-632*
Jie, W., *see* Kim, J., *TMECH Aug. 2021 1782-1790*
Jin, J., *see* Zhao, C., *TMECH Feb. 2021 437-447*
Jin, L., Xie, Z., Liu, M., Chen, K., Li, C., and Yang, C., Novel Joint-Drift-Free Scheme at Acceleration Level for Robotic Redundancy Resolution With Tracking Error Theoretically Eliminated; *TMECH Feb. 2021 90-101*
Jo, G., *see* Kim, H., *TMECH Oct. 2021 2538-2547*
Jolfaei, A., *see* Farivar, F., *TMECH June 2021 1350-1357*
Joos, K.M., *see* Giudice, G.D., *TMECH Oct. 2021 2604-2615*
Jung, H., *see* Phung, H., *TMECH Oct. 2021 2495-2505*
Jung, H.J., Eshghi, A.T., and Lee, S., Structural Failure Detection Using Wireless Transmission Rate From Piezoelectric Energy Harvesters; *TMECH Aug. 2021 1708-1718*
Jung, H.S., Phung, H., Park, J.H., Yang, S.Y., Kim, K., Ko, J.U., Hwang, S.T., and Choi, H.R., Development of a Small and Lightweight Missile Fin Control Actuation System Driven by Novel Dielectric Elastomer Actuators; *TMECH April 2021 1002-1012*
Jung, Y., *see* Cha, K., *TMECH June 2021 1260-1270*
Jutinico, A.L., *see* Escalante, F.M., *TMECH Feb. 2021 491-502*

K

Kakogawa, A., Kawabata, T., and Ma, S., Plate-Springed Parallel Elastic Actuator for Efficient Snake Robot Movement; *TMECH Dec. 2021 3051-3063*
Kalairaj, M.S., *see* Cai, C.J., *TMECH June 2021 1678-1688*
Kali, Y., *see* Fallaha, C., *TMECH Feb. 2021 539-550*
Kamezaki, M., Iwata, H., and Sugano, S., Basic Input–Output Gain Tuning System Based on Control Input Histogram Leveling for Human-Operated Machines; *TMECH Dec. 2021 2857-2869*
Kamper, D.G., *see* Vertongen, J., *TMECH April 2021 955-965*
Kang, B.B., *see* Kim, B., *TMECH Dec. 2021 2932-2943*
Kang, Y., *see* Zeng, R., *TMECH June 2021 1581-1590*
Karami, F., Wu, L., and Tadesse, Y., Modeling of One-Ply and Two-Ply Twisted and Coiled Polymer Artificial Muscles ; *TMECH Feb. 2021 300-310*
Kasaei, S.H., OrthographicNet: A Deep Transfer Learning Approach for 3-D Object Recognition in Open-Ended Domains; *TMECH Dec. 2021 2910-2921*
Kasahara, J.Y.L., Fujii, H., Yamashita, A., and Asama, H., Weakly Supervised Acoustic Defect Detection in Concrete Structures Using Clustering-Based Augmentation; *TMECH Dec. 2021 2826-2834*
Katagiri, S., *see* Shen, Y., *TMECH Oct. 2021 2350-2361*
Kato, T., King, F., Takagi, K., and Hata, N., Robotized Catheter With Enhanced Distal Targeting for Peripheral Pulmonary Biopsy; *TMECH Oct. 2021 2451-2461*
Kawabata, T., *see* Kakogawa, A., *TMECH Dec. 2021 3051-3063*
Kayed, M.O., *see* Balbola, A.A., *TMECH April 2021 1076-1083*
Kaynak, O., *see* He, W., *TMECH April 2021 595-599*
Kaynak, O., *see* Sedghi, F., *TMECH Oct. 2021 2517-2527*
Kazanzides, P., *see* Sefati, S., *TMECH Feb. 2021 369-380*
Kazemy, A., *see* Shojaei, K., *TMECH June 2021 1689-1699*
Kazi, A., *see* Raab, M., *TMECH June 2021 1380-1391*
Khaled, T.A., Akhrif, O., and Bonev, I.A., Dynamic Path Correction of an Industrial Robot Using a Distance Sensor and an ADRC Controller; *TMECH June 2021 1646-1656*
Khanuja, H., *see* Sefati, S., *TMECH Feb. 2021 369-380*
Kim, B., Jeong, U., Kang, B.B., and Cho, K., Slider-Tendon Linear Actuator With Under-Actuation and Fast-Connection for Soft Wearable Robots; *TMECH Dec. 2021 2932-2943*
Kim, D., *see* Lee, S.J., *TMECH April 2021 765-776*
Kim, H., Lee, K., Jo, G., Kim, J., Lim, M.T., and Cha, Y., Tendon-Inspired Piezoelectric Sensor for Biometric Application; *TMECH Oct. 2021 2538-2547*
Kim, H.H., *see* Kim, J., *TMECH Aug. 2021 1782-1790*
Kim, H.J., *see* Lee, S.J., *TMECH April 2021 765-776*
Kim, H.S., *see* Chae, H., *TMECH Aug. 2021 1719-1727*
Kim, H.S., *see* Seo, M., *TMECH Aug. 2021 1812-1819*
Kim, H.S., *see* Yoo, S., *TMECH Aug. 2021 1754-1762*
Kim, J., *see* Lee, M., *TMECH Feb. 2021 191-202*
Kim, J., *see* Lee, S.J., *TMECH April 2021 765-776*
Kim, J., *see* Lee, J., *TMECH Aug. 2021 1820-1827*
Kim, J., Jie, W., Kim, H.H., and Lee, M.C., Modified Configuration Control With Potential Field for Inverse Kinematic Solution of Redundant Manipulator; *TMECH Aug. 2021 1782-1790*
Kim, J., *see* Kim, H., *TMECH Oct. 2021 2538-2547*
Kim, K., *see* Jung, H.S., *TMECH April 2021 1002-1012*
Kim, K., *see* Chae, H., *TMECH Aug. 2021 1719-1727*
Kim, S., *see* Hong, S., *TMECH Aug. 2021 2115-2126*
Kim, T., *see* Chae, H., *TMECH Aug. 2021 1719-1727*
Kim, T., *see* Yoo, S., *TMECH Aug. 2021 1754-1762*
King, F., *see* Kato, T., *TMECH Oct. 2021 2451-2461*
Knoll, A., *see* Chen, G., *TMECH June 2021 1547-1557*
Ko, J.U., *see* Jung, H.S., *TMECH April 2021 1002-1012*
Kobayashi, Y., *see* Miura, S., *TMECH April 2021 1013-1021*
Kolota, J., *see* Bernat, J., *TMECH Oct. 2021 2664-2675*
Kommuri, S.K., Park, Y., and Lee, S.B., Online Compensation of Mechanical Load Defects With Composite Control in PMSM Drives; *TMECH June 2021 1392-1400*
Kong, L., *see* Li, D., *TMECH April 2021 709-718*
Kong, X., *see* Zhang, Z., *TMECH Aug. 2021 1997-2006*
Kong, Y., *see* Dong, M., *TMECH June 2021 1490-1500*
Kuang, Z., Gao, H., and Tomizuka, M., Precise Linear-Motor Synchronization Control via Cross-Coupled Second-Order Discrete-Time Fractional-Order Sliding Mode ; *TMECH Feb. 2021 358-368*
Kumar, K.S., *see* Megalingam, R.K., *TMECH Feb. 2021 288-299*
Kuruppu, S.S., and Zou, Y., Static Position Sensor Bias Fault Diagnosis in Permanent Magnet Synchronous Machines via Current Estimation; *TMECH April 2021 888-896*

L

La, H.M., *see* Acharya, P., *TMECH Feb. 2021 527-538*
Lai, Y.P., *see* Shokrollahi, P., *TMECH Oct. 2021 2616-2628*
Lamarque, F., *see* Tisnes, S.D., *TMECH June 2021 1422-1432*
Lang, X., *see* Liu, W., *TMECH Aug. 2021 1846-1857*
Larranaga, P., *see* Atienza, D., *TMECH Feb. 2021 405-415*
Latikka, M., *see* Cenev, Z., *TMECH Aug. 2021 1932-1940*
Laurent, G.J., *see* Tiwari, B., *TMECH Aug. 2021 1837-1845*
Lazcano, A.M., Niu, T., Carrera Akutain, X., Cole, D., and Shyrokau, B., MPC-Based Haptic Shared Steering System: A Driver Modeling Approach for Symbiotic Driving; *TMECH June 2021 1201-1211*
Le, A.V., *see* Rayguru, M.M., *TMECH June 2021 1236-1247*
Le, T., Bui, M.P., and Yoon, J., Optimal Design and Implementation of a Novel Two-Dimensional Electromagnetic Navigation System That Allows Focused Heating of Magnetic Nanoparticles ; *TMECH Feb. 2021 551-562*
Le Gorrec, Y., *see* Liu, N., *TMECH Dec. 2021 3139-3150*
Leang, K.K., *see* Mitrovic, A., *TMECH June 2021 1412-1421*

Lee, C., *see* Lim, B., *TMECH Aug. 2021 1728-1736*
Lee, D., *see* Lee, S.J., *TMECH April 2021 765-776*
Lee, D., Liu, J., Lim, R., Chan, J.L., and Foong, S., Geometrical-Based Displacement Measurement With Pseudostereo Monocular Camera on Bidirectional Cascaded Linear Actuator; *TMECH Aug. 2021 1923-1931*
Lee, E., *see* Cha, K., *TMECH June 2021 1260-1270*
Lee, H., *see* Haghjoo, M.R., *TMECH Feb. 2021 13-23*
Lee, H., *see* Jeon, H., *TMECH June 2021 1401-1411*
Lee, I.J.J., *see* Cai, C.J., *TMECH June 2021 1678-1688*
Lee, J., *see* Lee, M., *TMECH Feb. 2021 191-202*
Lee, J., *see* Lee, S., *TMECH June 2021 1358-1368*
Lee, J., *see* Chae, H., *TMECH Aug. 2021 1719-1727*
Lee, J., Kim, J., Park, S., Hwang, D., and Yang, S., Soft Robotic Palm With Tunable Stiffness Using Dual-Layered Particle Jamming Mechanism ; *TMECH Aug. 2021 1820-1827*
Lee, K., *see* Oh, J., *TMECH Feb. 2021 102-112*
Lee, K., *see* Li, L., *TMECH April 2021 918-929*
Lee, K., *see* Kim, H., *TMECH Oct. 2021 2538-2547*
Lee, M., Kim, J., Hyung, S., Lee, J., Seo, K., Park, Y.J., Cho, J., Choi, B., Shim, Y., and Choi, H., A Compact Ankle Exoskeleton With a Multiaxis Parallel Linkage Mechanism; *TMECH Feb. 2021 191-202*
Lee, M., *see* Birla, M., *TMECH June 2021 1445-1454*
Lee, M.C., *see* Kim, J., *TMECH Aug. 2021 1782-1790*
Lee, M.W., *see* Jang, N., *TMECH Aug. 2021 1867-1876*
Lee, S., Lee, J., Park, J., and Sim, S., Nontarget-Based Measurement of 6-DOF Structural Displacement Using Combined RGB Color and Depth Information; *TMECH June 2021 1358-1368*
Lee, S., *see* Jung, H.J., *TMECH Aug. 2021 1708-1718*
Lee, S.B., *see* Kommuri, S.K., *TMECH June 2021 1392-1400*
Lee, S.J., Lee, D., Kim, J., Kim, D., Jang, I., and Kim, H.J., Fully Actuated Autonomous Flight of Thruster-Tilting Multirotor; *TMECH April 2021 765-776*
Lee, T.H., *see* Chen, J., *TMECH Oct. 2021 2770-2781*
Lee, Y., *see* Yang, S., *TMECH Feb. 2021 226-234*
Lefeber, D., *see* Crispel, S., *TMECH Aug. 2021 1980-1988*
Lei, L., *see* Zhao, B., *TMECH April 2021 943-954*
Lei, Z., Chen, X., Chen, X., and Chai, L., Radial Coverage Strength for Optimization of Monocular Multicamera Deployment; *TMECH Dec. 2021 3221-3231*
Leme, B., *see* Chen, Y., *TMECH Aug. 2021 2007-2015*
Leonhardt, S., *see* Liu, L., *TMECH Aug. 2021 2080-2091*
Lerner, E., *see* Zhang, H., *TMECH Oct. 2021 2316-2326*
Li, A., *see* Huang, Y., *TMECH Feb. 2021 33-44*
Li, B., *see* Cao, C., *TMECH Dec. 2021 3151-3162*
Li, C., *see* Jin, L., *TMECH Feb. 2021 90-101*
Li, C., *see* Wu, J., *TMECH June 2021 1369-1379*
Li, C., *see* Xiao, X., *TMECH Oct. 2021 2483-2494*
Li, C., *see* Helian, B., *TMECH Oct. 2021 2593-2603*
Li, C.G., Zhou, L., and Chao, Y., Self-Balancing Two-Wheeled Robot Featuring Intelligent End-to-End Deep Visual-Steering; *TMECH Oct. 2021 2263-2273*
Li, D., Cao, K., Kong, L., and Yu, H., Fully Distributed Cooperative Circumnavigation of Networked Unmanned Aerial Vehicles; *TMECH April 2021 709-718*
Li, D., *see* Zhou, N., *TMECH Aug. 2021 2092-2103*
Li, F., Jiang, Y., and Li, T., A Laser-Guided Solution to Manipulate Mobile Robot Arm Terminals Within a Large Workspace ; *TMECH Oct. 2021 2676-2687*
Li, G., Patel, N.A., Burdette, E.C., Pilitsis, J.G., Su, H., and Fischer, G.S., A Fully Actuated Robotic Assistant for MRI-Guided Precision Conformal Ablation of Brain Tumors; *TMECH Feb. 2021 255-266*
Li, G., *see* Wu, Y., *TMECH Feb. 2021 563-573*
Li, G., *see* Ma, J., *TMECH April 2021 730-740*
Li, G., Song, D., Xu, S., Sun, L., and Liu, J., On Perpendicular Curve-Based Model-Less Control Considering Incomplete Orientation Constraint; *TMECH June 2021 1479-1489*
Li, G., *see* Birla, M., *TMECH June 2021 1445-1454*
Li, G., and Zhu, W., Experimental Investigation on Control of an Infinitely Variable Transmission System for Tidal Current Energy Converters ; *TMECH Aug. 2021 1960-1967*
Li, H., Cheng, L., Li, Z., and Xue, W., Active Disturbance Rejection Control for a Fluid-Driven Hand Rehabilitation Device; *TMECH April 2021 841-853*
Li, H., *see* Birla, M., *TMECH June 2021 1445-1454*
Li, H., *see* Tao, Y., *TMECH Aug. 2021 2186-2194*
Li, H., *see* Cao, C., *TMECH Dec. 2021 3151-3162*
Li, J., *see* Zhao, J., *TMECH Feb. 2021 3-12*
Li, J., *see* Tan, Q., *TMECH April 2021 621-632*
Li, J., *see* Dong, M., *TMECH June 2021 1490-1500*
Li, J., Huang, R., He, G., Liao, Y., Wang, Z., and Li, W., A Two-Stage Transfer Adversarial Network for Intelligent Fault Diagnosis of Rotating Machinery With Multiple New Faults; *TMECH June 2021 1591-1601*
Li, J., *see* Xu, Y., *TMECH Aug. 2021 2249-2260*
Li, J., *see* Deng, J., *TMECH Aug. 2021 2059-2070*
Li, K., *see* Guo, J., *TMECH Aug. 2021 2151-2162*
Li, L., Huang, J., Aphale, S.S., and Zhu, L., A Smoothed Raster Scanning Trajectory Based on Acceleration-Continuous B-Spline Transition for High-Speed Atomic Force Microscopy; *TMECH Feb. 2021 24-32*
Li, L., Lee, K., Ouyang, X., and Yang, H., Analytical Harmonic Method for Modeling High-Frequency Oscillation With Applications to Aircraft Piston Pump Vibration Analysis; *TMECH April 2021 918-929*
Li, L., Huang, J., Aphale, S.S., and Zhu, L., Erratum to "A Smoothed Raster Scanning Trajectory Based on Acceleration-Continuous B-Spline Transition for High-Speed Atomic Force Microscopy" [Feb 21 24-32]; *TMECH June 2021 1700*
Li, M., *see* Zhang, X., *TMECH April 2021 807-817*
Li, N., *see* Shi, Y., *TMECH Feb. 2021 214-225*
Li, P., *see* Roy, S., *TMECH Dec. 2021 3064-3075*
Li, Q., *see* Zhao, C., *TMECH Feb. 2021 437-447*
Li, Q., Meng, F., Yu, Z., Chen, X., and Huang, Q., Dynamic Torso Compliance Control for Standing and Walking Balance of Position-Controlled Humanoid Robots; *TMECH April 2021 679-688*
Li, Q., *see* Li, Z., *TMECH Oct. 2021 2700-2711*
Li, Q., *see* Li, T., *TMECH Dec. 2021 3040-3050*
Li, S., *see* Zhao, B., *TMECH April 2021 943-954*
Li, T., *see* Li, F., *TMECH Oct. 2021 2676-2687*
Li, T., Wang, L., Yi, J., Li, Q., and Liu, T., Reconstructing Walking Dynamics From Two Shank-Mounted Inertial Measurement Units; *TMECH Dec. 2021 3040-3050*
Li, W., *see* Tu, L., *TMECH Feb. 2021 156-167*
Li, W., *see* Xie, H., *TMECH Feb. 2021 515-526*
Li, W., *see* Li, J., *TMECH June 2021 1591-1601*
Li, X., *see* Guo, Q., *TMECH Aug. 2021 2048-2058*
Li, X., *see* Li, Z., *TMECH Oct. 2021 2700-2711*
Li, X., *see* Zhou, J., *TMECH Dec. 2021 3128-3138*
Li, Y., *see* Liu, T., *TMECH April 2021 930-942*
Li, Y., *see* Xu, Y., *TMECH Aug. 2021 2249-2260*
Li, Y., *see* Zheng, E., *TMECH Oct. 2021 2373-2384*
Li, Y., Liu, Y., Yamazaki, K., Bai, M., and Chen, Y., Development of a Soft Robot Based Photodynamic Therapy for Pancreatic Cancer ; *TMECH Dec. 2021 2977-2985*
Li, Y., *see* Fan, R., *TMECH Dec. 2021 2870-2880*
Li, Y., *see* Cao, C., *TMECH Dec. 2021 3151-3162*
Li, Y., *see* Chen, L., *TMECH Dec. 2021 2922-2931*
Li, Z., *see* Liu, Y., *TMECH April 2021 657-667*
Li, Z., *see* Zhang, X., *TMECH April 2021 807-817*
Li, Z., *see* Li, H., *TMECH April 2021 841-853*
Li, Z., *see* He, W., *TMECH April 2021 595-599*
Li, Z., Gong, J., Lu, C., and Yi, Y., Interactive Behavior Prediction for Heterogeneous Traffic Participants in the Urban Road: A Graph-Neural-Network-Based Multitask Learning Framework; *TMECH June 2021 1339-1349*
Li, Z., *see* Chen, G., *TMECH June 2021 1547-1557*
Li, Z., *see* Zhang, B., *TMECH Oct. 2021 2396-2407*

Li, Z., Zhao, K., Zhang, L., Wu, X., Zhang, T., Li, Q., Li, X., and Su, C., Human-in-the-Loop Control of a Wearable Lower Limb Exoskeleton for Stable Dynamic Walking; *TMECH Oct. 2021 2700-2711*
Li, Z., *see* Zhou, J., *TMECH Dec. 2021 3128-3138*
Liang, C., *see* Chen, S., *TMECH Dec. 2021 3254-3264*
Liang, J., *see* Zhang, Z., *TMECH Dec. 2021 3232-3242*
Liang, L., *see* Liu, F., *TMECH Feb. 2021 113-123*
Liang, X., *see* Zheng, M., *TMECH Feb. 2021 45-54*
Liao, C., *see* Chen, S., *TMECH Dec. 2021 3254-3264*
Liao, H., Cheng, S., and Hwu, E., Development of a Resonant Scanner to Improve the Imaging Rate of Astigmatic Optical Profilometers; *TMECH April 2021 1172-1177*
Liao, W., *see* Cai, M., *TMECH Aug. 2021 2104-2114*
Liao, Y., *see* Li, J., *TMECH June 2021 1591-1601*
Lim, B., Lee, C., and Hwang, D., Development of Embedded Sensor System for 5-DOF Finger-Wearable Tactile Interface; *TMECH Aug. 2021 1728-1736*
Lim, M., *see* Hwang, S., *TMECH April 2021 1033-1042*
Lim, M., *see* Cha, K., *TMECH June 2021 1260-1270*
Lim, M.T., *see* Kim, H., *TMECH Oct. 2021 2538-2547*
Lim, R., *see* Lee, D., *TMECH Aug. 2021 1923-1931*
Lin, F., *see* Chen, S., *TMECH Dec. 2021 3254-3264*
Lin, H., *see* Wang, Y., *TMECH Aug. 2021 1858-1866*
Lin, L., Computationally Improved State-Dependent Riccati Equation Scheme for Nonlinear Benchmark System; *TMECH April 2021 1064-1075*
Lin, T.X., *see* Tao, Q., *TMECH Aug. 2021 1895-1904*
Lin, X., *see* Deng, Z., *TMECH June 2021 1295-1306*
Lin, Y., *see* Wang, F., *TMECH Feb. 2021 66-77*
Lin, Y., Chen, Z., and Yao, B., Unified Motion/Force/Impedance Control for Manipulators in Unknown Contact Environments Based on Robust Model-Reaching Approach; *TMECH Aug. 2021 1905-1913*
Lin, Y., *see* Fu, Z., *TMECH Oct. 2021 2688-2699*
Ling, J., *see* Chen, L., *TMECH Aug. 2021 1951-1959*
Linner, T., *see* Cheah, C.C., *TMECH Dec. 2021 2819-2825*
Liu, C., Chung, F., and Ho, Y., Topology Optimization for Design of a 3D-Printed Constant-Force Compliant Finger; *TMECH Aug. 2021 1828-1836*
Liu, D., *see* Acharya, P., *TMECH Feb. 2021 527-538*
Liu, D., *see* Liu, F., *TMECH Feb. 2021 113-123*
Liu, F., Liang, L., Xu, G., Hou, C., and Liu, D., Four-Point Method in the Measurement and Separation of Spindle Rotation Error; *TMECH Feb. 2021 113-123*
Liu, G., Zhu, S., and Sun, X., Kernel Principal Components Analysis of Lateral Force Data for Quantitative Evaluation of 3D Features Rendering Fidelity; *TMECH June 2021 1602-1612*
Liu, H., Selvaggio, M., Ferrentino, P., Moccia, R., Pirozzi, S., Bracale, U., and Ficuciello, F., The MUSHA Hand II:A Multifunctional Hand for Robot-Assisted Laparoscopic Surgery; *TMECH Feb. 2021 393-404*
Liu, H., *see* Tan, Q., *TMECH April 2021 621-632*
Liu, H., *see* Liu, X., *TMECH June 2021 1536-1546*
Liu, J., *see* Li, G., *TMECH June 2021 1479-1489*
Liu, J., *see* Lee, D., *TMECH Aug. 2021 1923-1931*
Liu, K., *see* Shimonomura, S., *TMECH Aug. 2021 2163-2173*
Liu, K., *see* Chen, F., *TMECH Oct. 2021 2629-2640*
Liu, K., Hu, X., Zhou, H., Tong, L., Widanage, W.D., and Marco, J., Feature Analyses and Modeling of Lithium-Ion Battery Manufacturing Based on Random Forest Classification; *TMECH Dec. 2021 2944-2955*
Liu, L., *see* Liu, Y., *TMECH Feb. 2021 168-178*
Liu, L., Hong, Z., Penzlin, B., Misgeld, B.J.E., Ngo, C., Bergmann, L., and Leonhardt, S., Low Impedance-Guaranteed Gain-Scheduled GESO for Torque-Controlled VSA With Application of Exoskeleton-Assisted Sit-to-Stand; *TMECH Aug. 2021 2080-2091*
Liu, M., *see* Jin, L., *TMECH Feb. 2021 90-101*
Liu, M., *see* Wu, J., *TMECH June 2021 1369-1379*
Liu, N., Wu, Y., and Le Gorrec, Y., Energy-Based Modeling of Ionic Polymer–Metal Composite Actuators Dedicated to the Control of Flexible Structures; *TMECH Dec. 2021 3139-3150*
Liu, P.X., *see* Bao, J., *TMECH June 2021 1570-1580*
Liu, S., Wang, F., Liu, Z., Zhang, W., Tian, Y., and Zhang, D., A Two-Finger Soft-Robotic Gripper With Enveloping and Pinching Grasping Modes; *TMECH Feb. 2021 146-155*
Liu, S., *see* Liu, Z., *TMECH Aug. 2021 2195-2203*
Liu, S., *see* Liu, W., *TMECH Aug. 2021 1846-1857*
Liu, S., Zhu, Y., Zhang, Z., Fang, Z., Tan, J., Peng, J., Song, C., Asada, H.H., and Wang, Z., Otariidae-Inspired Soft-Robotic Supernumerary Flippers by Fabric Kirigami and Origami ; *TMECH Oct. 2021 2747-2757*
Liu, T., Xu, W., Yang, T., and Li, Y., A Hybrid Active and Passive Cable-Driven Segmented Redundant Manipulator: Design, Kinematics, and Planning; *TMECH April 2021 930-942*
Liu, T., *see* Li, T., *TMECH Dec. 2021 3040-3050*
Liu, W., Liu, S., Cao, J., Wang, Q., Lang, X., and Liu, Y., Learning Communication for Cooperation in Dynamic Agent-Number Environment; *TMECH Aug. 2021 1846-1857*
Liu, X., *see* Wu, Y., *TMECH Feb. 2021 563-573*
Liu, X., *see* Dong, X., *TMECH Feb. 2021 427-436*
Liu, X., Chen, W., Madhusudanan, H., Du, L., and Sun, Y., Camera Orientation Optimization in Stereo Vision Systems for Low Measurement Error; *TMECH April 2021 1178-1182*
Liu, X., Liu, H., and Tan, J., Actuation Frequency Modeling and Prediction for Shape Memory Alloy Actuators; *TMECH June 2021 1536-1546*
Liu, X., Ge, S.S., Zhao, F., and Mei, X., Optimized Interaction Control for Robot Manipulator Interacting With Flexible Environment; *TMECH Dec. 2021 2888-2898*
Liu, Y., Zhang, Y., Liu, L., Tong, S., and Chen, C.L.P., Adaptive Finite-Time Control for Half-Vehicle Active Suspension Systems With Uncertain Dynamics; *TMECH Feb. 2021 168-178*
Liu, Y., Li, Z., Su, H., and Su, C., Whole-Body Control of an Autonomous Mobile Manipulator Using Series Elastic Actuators; *TMECH April 2021 657-667*
Liu, Y., *see* Wang, Z., *TMECH April 2021 1095-1105*
Liu, Y., *see* Zhao, H., *TMECH April 2021 645-656*
Liu, Y., *see* Wang, T., *TMECH April 2021 1183-1188*
Liu, Y., *see* Wang, Y., *TMECH June 2021 1318-1327*
Liu, Y., *see* Zhou, S., *TMECH June 2021 1467-1478*
Liu, Y., *see* Deng, J., *TMECH Aug. 2021 2059-2070*
Liu, Y., *see* Liu, W., *TMECH Aug. 2021 1846-1857*
Liu, Y., *see* Zhang, Z., *TMECH Aug. 2021 1997-2006*
Liu, Y., *see* Li, Y., *TMECH Dec. 2021 2977-2985*
Liu, Y., *see* Cheah, C.C., *TMECH Dec. 2021 2819-2825*
Liu, Z., *see* Liu, S., *TMECH Feb. 2021 146-155*
Liu, Z., Wu, J., Wang, L., and Zhang, B., Control Parameters Design Based on Dynamic Characteristics of a Hybrid Robot With Parallelogram Structures ; *TMECH April 2021 1140-1150*
Liu, Z., *see* Zhou, S., *TMECH June 2021 1467-1478*
Liu, Z., *see* Han, L., *TMECH Aug. 2021 2016-2026*
Liu, Z., Wang, F., Liu, S., Tian, Y., and Zhang, D., Modeling and Analysis of Soft Pneumatic Network Bending Actuators; *TMECH Aug. 2021 2195-2203*
Liu, Z., *see* Ma, Z., *TMECH Oct. 2021 2472-2482*
Liu, Z., *see* Song, Y., *TMECH Dec. 2021 2986-2997*
Long, F., Cheng, P., Meng, T., and Menq, C., Optimal Current Allocation Rendering 3-D Magnetic Force Production in Hexapole Electromagnetic Actuation; *TMECH Oct. 2021 2408-2417*
Lou, E., *see* Balbola, A.A., *TMECH April 2021 1076-1083*
Lu, C., *see* Li, Z., *TMECH June 2021 1339-1349*
Lu, J., *see* Zhu, H., *TMECH Oct. 2021 2712-2723*
Lu, K., *see* Lu, W., *TMECH June 2021 1613-1623*
Lu, K., *see* Pang, X., *TMECH Aug. 2021 2027-2037*
Lu, L., *see* Gong, X., *TMECH June 2021 1271-1282*
Lu, L., *see* Ding, C., *TMECH Aug. 2021 2237-2248*
Lu, W., Tang, B., Wu, Y., Lu, K., Wang, D., and Wang, X., A New Position Detection and Status Monitoring System for Joint of SCARA; *TMECH June 2021 1613-1623*
Lu, X., *see* Ma, J., *TMECH April 2021 730-740*

Lu, Z., Wang, N., and Yang, C., A Constrained DMPs Framework for Robot Skills Learning and Generalization From Human Demonstrations; *TMECH Dec. 2021 3265-3275*
Luo, J., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*
Luo, Y., *see* Guo, J., *TMECH Aug. 2021 2151-2162*
Lutz, P., *see* Tiwari, B., *TMECH Aug. 2021 1837-1845*
Lv, C., *see* Huang, C., *TMECH April 2021 611-620*
Lv, C., *see* Ivanov, V., *TMECH June 2021 1195-1200*
Lyu, L., *see* Helian, B., *TMECH Oct. 2021 2593-2603*
Lyu, X., *see* Zheng, M., *TMECH Feb. 2021 45-54*

M

Ma, B., *see* Gong, X., *TMECH June 2021 1271-1282*
Ma, B., and Wang, Y., Adaptive Output Feedback Control of Steer-by-Wire Systems With Event-Triggered Communication; *TMECH Aug. 2021 1968-1979*
Ma, J., Li, G., Lu, X., Jia, Z., Qin, F., and Qu, Z., Toolpath Regeneration in Subregional Contour-Parallel Processing Based on Isoscallop Method; *TMECH April 2021 730-740*
Ma, S., *see* Kakogawa, A., *TMECH Dec. 2021 3051-3063*
Ma, Y., Jiang, B., and Cocquempot, V., Modeling and Adaptive Fault Compensation for Two Physically Linked 2WD Mobile Robots; *TMECH April 2021 1161-1171*
Ma, Z., Liu, Z., and Huang, P., Fractional-Order Control for Uncertain Teleoperated Cyber-Physical System With Actuator Fault; *TMECH Oct. 2021 2472-2482*
Madhusudanan, H., *see* Liu, X., *TMECH April 2021 1178-1182*
Mai, J., *see* Gao, S., *TMECH Oct. 2021 2429-2439*
Malysheva, J., Ustinov, S., and Handroos, H., Computationally Efficient Practical Method for Solving the Dynamics of Fluid Power Circuits in the Presence of Singularities; *TMECH Oct. 2021 2385-2395*
Manoharan, S.K., *see* Megalingam, R.K., *TMECH Feb. 2021 288-299*
Marco, J., *see* Liu, K., *TMECH Dec. 2021 2944-2955*
Maroufi, M., *see* Nikooienejad, N., *TMECH Aug. 2021 2127-2138*
Martel, S., *see* Shi, Y., *TMECH Feb. 2021 214-225*
Matsuura, N., *see* Shokrollahi, P., *TMECH Oct. 2021 2616-2628*
Megalingam, R.K., Manoharan, S.K., Mohandas, S.M., Vadivel, S.R.R., Gangireddy, R., Ghanta, S., Kumar, K.S., Teja, P.S., and Sivanantham, V., Amaran:An Unmanned Robotic Coconut Tree Climber and Harvester; *TMECH Feb. 2021 288-299*
Mehling, J.S., *see* Thomas, G.C., *TMECH Feb. 2021 586-591*
Mei, X., *see* Liu, X., *TMECH Dec. 2021 2888-2898*
Melchiorri, C., *see* Biagiotti, L., *TMECH Oct. 2021 2724-2734*
Mendoza-Trejo, O., and Cruz-Villar, C.A., Robust Concurrent Design of a 2-DOF Collaborative Robot (Cobot); *TMECH Feb. 2021 347-357*
Meng, F., *see* Li, Q., *TMECH April 2021 679-688*
Meng, Q., Guo, H., Zhao, X., Cao, D., and Chen, H., Loop-Closure Detection With a Multiresolution Point Cloud Histogram Mode in Lidar Odometry and Mapping for Intelligent Vehicles; *TMECH June 2021 1307-1317*
Meng, T., *see* Long, F., *TMECH Oct. 2021 2408-2417*
Meng, Z., *see* Wang, Z., *TMECH April 2021 1095-1105*
Meng, Z., *see* Chen, L., *TMECH Dec. 2021 2922-2931*
Mengacci, R., Garabini, M., Grioli, G., Catalano, M.G., and Bicchi, A., Overcoming the Torque/Stiffness Range Tradeoff in Antagonistic Variable Stiffness Actuators; *TMECH Dec. 2021 3186-3197*
Menq, C., *see* Long, F., *TMECH Oct. 2021 2408-2417*
Meurer, T., *see* He, W., *TMECH April 2021 595-599*
Meyer, T.J.J., *see* Shanbhag, V.V., *TMECH Dec. 2021 3087-3103*
Miao, Y., *see* Chen, S., *TMECH Aug. 2021 1745-1753*
Miao, Z., *see* Zhao, H., *TMECH April 2021 645-656*
Mineo, C., *see* Wong, C., *TMECH Oct. 2021 2294-2305*
Mioskowska, M., *see* Chen, S., *TMECH Aug. 2021 1989-1996*
Misgeld, B.J.E., *see* Liu, L., *TMECH Aug. 2021 2080-2091*
Mishra, S., Syed, D.F., Ploughe, M., and Zhang, W., Autonomous Vision-Guided Object Collection From Water Surfaces With a Customized Multirotor; *TMECH Aug. 2021 1914-1922*
Mitrovic, A., Nagel, W.S., Leang, K.K., and Clayton, G.M., Closed-Loop Range-Based Control of Dual-Stage Nanopositioning Systems; *TMECH June 2021 1412-1421*
Miura, S., Takazawa, J., Kobayashi, Y., and Fujie, M.G., Brain–Machine Interface Using Functional Electrical Stimulation and Motion-Related Cortical Potentials Identified by a Support Vector Machine; *TMECH April 2021 1013-1021*
Moccia, R., *see* Liu, H., *TMECH Feb. 2021 393-404*
Mohajer, N., Najdovski, Z., and Nahavandi, S., An Efficient Design Solution for a Low-Cost High-G Centrifuge System; *TMECH Feb. 2021 134-145*
Mohammad, A., *see* Ba, W., *TMECH Dec. 2021 3010-3021*
Mohammadigheisar, M., *see* Shokrollahi, P., *TMECH Oct. 2021 2616-2628*
Mohan, R.E., *see* Rayguru, M.M., *TMECH June 2021 1236-1247*
Mohandas, S.M., *see* Megalingam, R.K., *TMECH Feb. 2021 288-299*
Moheimani, S.O.R., *see* Nikooienejad, N., *TMECH Aug. 2021 2127-2138*
Montanaro, U., *see* Dalboni, M., *TMECH June 2021 1212-1224*
Mou, Q., *see* Zhao, J., *TMECH Feb. 2021 3-12*
Moussa, W.A., *see* Balbola, A.A., *TMECH April 2021 1076-1083*
Mugilvannan, A.K., *see* Cai, C.J., *TMECH June 2021 1678-1688*
Muhammad, I., Ying, K., Nithish, M., Xin, J., Xinge, Z., and Cheah, C.C., Robot-Assisted Object Detection for Construction Automation: Data and Information-Driven Approach; *TMECH Dec. 2021 2845-2856*

N

Na, J., *see* Zhang, C., *TMECH Aug. 2021 2226-2236*
Nagel, W.S., *see* Mitrovic, A., *TMECH June 2021 1412-1421*
Nahavandi, S., *see* Mohajer, N., *TMECH Feb. 2021 134-145*
Najdovski, Z., *see* Mohajer, N., *TMECH Feb. 2021 134-145*
Narang, D., *see* Chen, J., *TMECH Aug. 2021 1737-1744*
Nesler, C., *see* Zhu, H., *TMECH Dec. 2021 3104-3115*
Ngo, C., *see* Liu, L., *TMECH Aug. 2021 2080-2091*
Nguyen, A., Dinh, T.Q., Guerra, T., and Pan, J., Takagi–Sugeno Fuzzy Unknown Input Observers to Estimate Nonlinear Dynamics of Autonomous Ground Vehicles: Theory and Real-Time Verification; *TMECH June 2021 1328-1338*
Nguyen, C.T., *see* Phung, H., *TMECH Oct. 2021 2495-2505*
Nguyen, D., Saussie, D., and Saydy, L., Design and Experimental Validation of Robust Self-Scheduled Fault-Tolerant Control Laws for a Multicopter UAV ; *TMECH Oct. 2021 2548-2557*
Nguyen, K., *see* Acharya, P., *TMECH Feb. 2021 527-538*
Nguyen, T.D., *see* Phung, H., *TMECH Oct. 2021 2495-2505*
Nie, R., *see* Chen, H., *TMECH Feb. 2021 469-479*
Nikooienejad, N., Maroufi, M., and Moheimani, S.O.R., Iterative Learning Control for Video-Rate Atomic Force Microscopy; *TMECH Aug. 2021 2127-2138*
Ning, D., *see* Tu, L., *TMECH Feb. 2021 156-167*
Nithish, M., *see* Muhammad, I., *TMECH Dec. 2021 2845-2856*
Niu, T., *see* Lazcano, A.M., *TMECH June 2021 1201-1211*
Njaka, T., Brizzolara, S., and Ben-Tzvi, P., Design and Experimental Validation of a Novel High-Speed Omnidirectional Underwater Propulsion Mechanism; *TMECH Oct. 2021 2339-2349*
Norton, A., *see* Ba, W., *TMECH Dec. 2021 3010-3021*
Nozaki, T., *see* Sariyildiz, E., *TMECH Aug. 2021 2139-2150*
Nurmi, S., *see* Cenev, Z., *TMECH Aug. 2021 1932-1940*

O

O-Tani, H., *see* Takeyama, T., *TMECH Dec. 2021 2881-2887*
Oh, J., Sim, O., Cho, B., and Lee, K., Online Delayed Reference Generation for a Humanoid Imitating Human Walking Motion; *TMECH Feb. 2021 102-112*
Oh, J., *see* Oh, J., *TMECH Feb. 2021 102-112*
Oh, J., *see* Seo, M., *TMECH Aug. 2021 1812-1819*
Oh, J., *see* Yoo, S., *TMECH Aug. 2021 1754-1762*
Ohnishi, K., *see* Sariyildiz, E., *TMECH Aug. 2021 2139-2150*
Oishi, S., *see* Takeyama, T., *TMECH Dec. 2021 2881-2887*
Oka, K., *see* Zhao, C., *TMECH Feb. 2021 437-447*

Olaizola, J., Esteban, E., Trinidad, J., Iturrospe, A., Galdos, L., Abete, J.M., Argandona, E.S.d., Integral Design and Manufacturing Methodology of a Reduced-Scale Servo Press ; *TMECH Oct. 2021 2418-2428*
Oldham, K.R., *see* Birla, M., *TMECH June 2021 1445-1454*
Oncken, J., Sachdeva, K., Wang, H., and Chen, B., Integrated Predictive Powertrain Control for a Multimode Plug-in Hybrid Electric Vehicle; *TMECH June 2021 1248-1259*
Ongel, A., *see* Ivanov, V., *TMECH June 2021 1195-1200*
Orekhov, A.L., *see* Giudice, G.D., *TMECH Oct. 2021 2604-2615*
Orozco-Magdaleno, E.C., Gomez-Bravo, F., Castillo-Castaneda, E., and Carbone, G., Evaluation of Locomotion Performances for a Mecanum-Wheeled Hybrid Hexapod Robot; *TMECH June 2021 1657-1667*
Ota, J., *see* Huang, Y., *TMECH Aug. 2021 2174-2185*
Ouyang, X., *see* Li, L., *TMECH April 2021 918-929*

P

Paez-Granados, D.F., *see* Chen, Y., *TMECH Aug. 2021 2007-2015*
Paik, J., *see* Rodriguez, A.S., *TMECH Oct. 2021 2791-2802*
Pal, A., Zhu, L., Wang, Y., G. Zhu, G., Constrained Surrogate-Based Engine Calibration Using Lower Confidence Bound; *TMECH Dec. 2021 3116-3127*
Pan, J., *see* Nguyen, A., *TMECH June 2021 1328-1338*
Pan, J., *see* Fu, Z., *TMECH Oct. 2021 2688-2699*
Pan, Q., *see* Chen, F., *TMECH Oct. 2021 2629-2640*
Pan, Z., *see* Bu, F., *TMECH April 2021 1129-1139*
Pang, X., Xue, X., Jiang, W., and Lu, K., An Investigation Into Fault Diagnosis of Planetary Gearboxes Using A Bispectrum Convolutional Neural Network; *TMECH Aug. 2021 2027-2037*
Park, G., *see* Chae, H., *TMECH Aug. 2021 1719-1727*
Park, J., *see* Lee, S., *TMECH June 2021 1358-1368*
Park, J., *see* Hong, S., *TMECH Aug. 2021 2115-2126*
Park, J.H., *see* Jung, H.S., *TMECH April 2021 1002-1012*
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Pascoal, A.M., *see* Teng, M., *TMECH Oct. 2021 2570-2580*
Patel, N., *see* Ebrahimi, A., *TMECH June 2021 1512-1523*
Patel, N.A., *see* Li, G., *TMECH Feb. 2021 255-266*
Pecht, M.G., *see* She, D., *TMECH Oct. 2021 2440-2450*
Peddinti, V., *see* Zhu, H., *TMECH Dec. 2021 3104-3115*
Peng, B., *see* Zhou, W., *TMECH Aug. 2021 1773-1781*
Peng, J., *see* Liu, S., *TMECH Oct. 2021 2747-2757*
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Peng, Y., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*
Penzlin, B., *see* Liu, L., *TMECH Aug. 2021 2080-2091*
Petersen, I.R., *see* Tran, V.P., *TMECH Oct. 2021 2306-2315*
Petit, L., *see* Tisnes, S.D., *TMECH June 2021 1422-1432*
Phung, H., *see* Jung, H.S., *TMECH April 2021 1002-1012*
Phung, H., Hoang, P.T., Jung, H., Nguyen, T.D., Nguyen, C.T., and Choi, H.R., Haptic Display Responsive to Touch Driven by Soft Actuator and Soft Sensor; *TMECH Oct. 2021 2495-2505*
Pilitsis, J.G., *see* Li, G., *TMECH Feb. 2021 255-266*
Pirozzi, S., *see* Liu, H., *TMECH Feb. 2021 393-404*
Ploughe, M., *see* Mishra, S., *TMECH Aug. 2021 1914-1922*
Poletkin, K.V., Static Pull-In Behavior of Hybrid Levitation Microactuators: Simulation, Modeling, and Experimental Study; *TMECH April 2021 753-764*
Popieul, J., *see* Fouka, M., *TMECH Aug. 2021 1763-1772*
Pozzato, G., Strada, S.C., Tanelli, M., Savaresi, S.M., and Dambach, G., MEMS-Enabled Retrofitting of Automobile Wheel Balancer for Automatic Unbalance Detection; *TMECH April 2021 830-840*
Prelle, C., *see* Tisnes, S.D., *TMECH June 2021 1422-1432*
Pu, H., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*

Q

Qian, F., *see* Xie, G., *TMECH April 2021 633-644*
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Qianyi, Z., *see* Teng, M., *TMECH Oct. 2021 2570-2580*
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Qin, B., *see* Zeng, R., *TMECH June 2021 1581-1590*
Qin, F., *see* Ma, J., *TMECH April 2021 730-740*
Qin, Y., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*
Qu, Z., *see* Ma, J., *TMECH April 2021 730-740*
Quintana, J., *see* Simetti, E., *TMECH June 2021 1635-1645*

R

Raab, M., Hutter, M., Kazi, A., Schinkoethe, W., and Gundelsweiler, B., Magnetically Levitated Linear Drive Using an Active Gravity Compensation Based on Hybrid Shape Memory Actuators; *TMECH June 2021 1380-1391*
Raggini, D., *see* Bosso, A., *TMECH June 2021 1501-1511*
Rajamani, R., *see* Jeon, W., *TMECH Aug. 2021 1941-1950*
Ramalingam, V.S., *see* Abirami B, S., *TMECH Oct. 2021 2814-2817*
Ran, L., *see* Zhou, W., *TMECH Aug. 2021 1773-1781*
Ras, R., *see* Cenev, Z., *TMECH Aug. 2021 1932-1940*
Rash-Ahmadi, S., *see* Shokrollahi, P., *TMECH Oct. 2021 2616-2628*
Rayguru, M.M., Mohan, R.E., Parween, R., Yi, L., Le, A.V., and Roy, S., An Output Feedback Based Robust Saturated Controller Design for Pavement Sweeping Self-Reconfigurable Robot; *TMECH June 2021 1236-1247*
Rehan, M., Al-Bahadly, I., Thomas, D.G., and Avci, E., Measurement of Peristaltic Forces Exerted by Living Intestine on Robotic Capsule; *TMECH Aug. 2021 1803-1811*
Ren, H., *see* Cai, C.J., *TMECH June 2021 1678-1688*
Ren, H., *see* Xiao, X., *TMECH Oct. 2021 2483-2494*
Rodriguez, A.S., Hosseini, M., and Paik, J., Hybrid Control Strategy for Force and Precise End Effector Positioning of a Twisted String Actuator; *TMECH Oct. 2021 2791-2802*
Rong, X., *see* Dong, M., *TMECH June 2021 1490-1500*
Rosset, S., *see* Bernat, J., *TMECH Oct. 2021 2664-2675*
Roy, S., *see* Rayguru, M.M., *TMECH June 2021 1236-1247*
Roy, S., Baldi, S., Li, P., and Sankaranarayanan, V.N., Artificial-Delay Adaptive Control for Underactuated Euler–Lagrange Robotics ; *TMECH Dec. 2021 3064-3075*
Ru, H., *see* Cao, Y., *TMECH Feb. 2021 574-585*

S

Saad, M., *see* Fallaha, C., *TMECH Feb. 2021 539-550*
Sachdeva, K., *see* Oncken, J., *TMECH June 2021 1248-1259*
Saerens, E., *see* Crispel, S., *TMECH Aug. 2021 1980-1988*
Salcudean, S.E., *see* Hosseinabadi, A.H.H., *TMECH Oct. 2021 2581-2592*
Sandoz, P., *see* Tiwari, B., *TMECH Aug. 2021 1837-1845*
Sankaranarayanan, V.N., *see* Roy, S., *TMECH Dec. 2021 3064-3075*
Santoso, F., *see* Tran, V.P., *TMECH Oct. 2021 2306-2315*
Sariyildiz, E., *see* Tawk, C., *TMECH April 2021 876-887*
Sariyildiz, E., Hangai, S., Uzunovic, T., Nozaki, T., and Ohnishi, K., Stability and Robustness of the Disturbance Observer-Based Motion Control Systems in Discrete-Time Domain; *TMECH Aug. 2021 2139-2150*
Saruhan, E.N., *see* Demircali, A.A., *TMECH Dec. 2021 2956-2966*
Saussie, D., *see* Nguyen, D., *TMECH Oct. 2021 2548-2557*
Savaresi, S.M., *see* Pozzato, G., *TMECH April 2021 830-840*
Saydy, L., *see* Nguyen, D., *TMECH Oct. 2021 2548-2557*
Scharff, R.B.N., Fang, G., Tian, Y., Wu, J., Geraedts, J.M.P., and Wang, C.C., Sensing and Reconstruction of 3-D Deformation on Pneumatic Soft Robots; *TMECH Aug. 2021 1877-1885*
Schinkoethe, W., *see* Raab, M., *TMECH June 2021 1380-1391*
Schitter, G., *see* Csencsics, E., *TMECH April 2021 1053-1063*
Schlanbusch, R., *see* Shanbhag, V.V., *TMECH Dec. 2021 3087-3103*
Secchi, C., *see* Ferraguti, F., *TMECH Feb. 2021 276-287*

Sedghi, F., Arefi, M.M., Abooee, A., and Kaynak, O., Adaptive Robust Finite-Time Nonlinear Control of a Typical Autonomous Underwater Vehicle With Saturated Inputs and Uncertainties; *TMECH Oct. 2021 2517-2527*
Sefati, S., Hegeman, R., Alambeigi, F., Iordachita, I., Kazanzides, P., Khanuja, H., Taylor, R.H., and Armand, M., A Surgical Robotic System for Treatment of Pelvic Osteolysis Using an FBG-Equipped Continuum Manipulator and Flexible Instruments; *TMECH Feb. 2021 369-380*
Sefati, S., *see* Ebrahimi, A., *TMECH June 2021 1512-1523*
Selvaggio, M., *see* Liu, H., *TMECH Feb. 2021 393-404*
Sencer, B., *see* Dumanli, A., *TMECH Oct. 2021 2735-2746*
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Sentouh, C., *see* Fouka, M., *TMECH Aug. 2021 1763-1772*
Seo, K., *see* Lee, M., *TMECH Feb. 2021 191-202*
Seo, M., Yoo, S., Choi, M., Oh, J., Kim, H.S., and Seo, T., Vibration Reduction of Flexible Rope-Driven Mobile Robot for Safe Façade Operation; *TMECH Aug. 2021 1812-1819*
Seo, M., *see* Yoo, S., *TMECH Aug. 2021 1754-1762*
Seo, T., *see* Chae, H., *TMECH Aug. 2021 1719-1727*
Seo, T., *see* Seo, M., *TMECH Aug. 2021 1812-1819*
Seo, T., *see* Yoo, S., *TMECH Aug. 2021 1754-1762*
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Seyfarth, A., *see* Sharbafi, M.A., *TMECH Feb. 2021 335-346*
Shan, M., *see* Wang, Y., *TMECH April 2021 719-729*
Shanbhag, V.V., Meyer, T.J.J., Caspers, L.W., and Schlanbusch, R., Failure Monitoring and Predictive Maintenance of Hydraulic Cylinder—State-of-the-Art Review; *TMECH Dec. 2021 3087-3103*
Shang, W., *see* Zhang, B., *TMECH Oct. 2021 2396-2407*
Shangguan, A., *see* Xie, G., *TMECH April 2021 633-644*
Shao, S., Chen, M., Hou, J., and Zhao, Q., Event-Triggered-Based Discrete-Time Neural Control for a Quadrotor UAV Using Disturbance Observer; *TMECH April 2021 689-699*
Sharbafi, M.A., Yazdanpanah, M.J., Ahmadabadi, M.N., and Seyfarth, A., Parallel Compliance Design for Increasing Robustness and Efficiency in Legged Locomotion–Theoretical Background and Applications; *TMECH Feb. 2021 335-346*
Sharifzadeh, M., and Aukes, D.M., Curvature-Induced Buckling for Flapping-Wing Vehicles; *TMECH Feb. 2021 503-514*
She, D., Jia, M., and Pecht, M.G., Weighted Entropy Minimization Based Deep Conditional Adversarial Diagnosis Approach Under Variable Working Conditions; *TMECH Oct. 2021 2440-2450*
Shen, J., *see* Giudice, G.D., *TMECH Oct. 2021 2604-2615*
Shen, Y., Harada, N., Katagiri, S., and Tanaka, H., Biomimetic Realization of a Robotic Penguin Wing: Design and Thrust Characteristics; *TMECH Oct. 2021 2350-2361*
Sheng, H., *see* Zhang, K., *TMECH April 2021 700-708*
Sheng, X., *see* Chen, G., *TMECH April 2021 668-678*
Shi, C., Dong, X., and Yang, Z., A Microgripper With a Large Magnification Ratio and High Structural Stiffness Based on a Flexure-Enabled Mechanism; *TMECH Dec. 2021 3076-3086*
Shi, Y., *see* Huang, Y., *TMECH Feb. 2021 33-44*
Shi, Y., Li, N., Tremblay, C.C., and Martel, S., A Piezoelectric Robotic System for MRI Targeting Assessments of Therapeutics During Dipole Field Navigation; *TMECH Feb. 2021 214-225*
Shi, Y., *see* Zhang, K., *TMECH April 2021 700-708*
Shi, Y., *see* Guo, Q., *TMECH Aug. 2021 2048-2058*
Shim, Y., *see* Lee, M., *TMECH Feb. 2021 191-202*
Shimonomura, S., Fang, J., Liu, K., Yamaguchi, T., Akiyama, T., and Sugiura, K., A Phase-Shaping Approach to the Control of Parametric Systems and Its Application; *TMECH Aug. 2021 2163-2173*
Shojaei, K., Kazemy, A., and Chatraei, A., An Observer-Based Neural AdaptivePID^2 Controller for Robot Manipulators Including Motor Dynamics With a Prescribed Performance; *TMECH June 2021 1689-1699*
Shokrollahi, P., Lai, Y.P., Rash-Ahmadi, S., Stewart, V., Mohammadigheisar, M., Huber, L., Matsuura, N., Zavodni, A.E.H., Parkinson, J., and Diller, E., Blindly Controlled Magnetically Actuated Capsule for Noninvasive Sampling of the Gastrointestinal Microbiome; *TMECH Oct. 2021 2616-2628*
Shon, H.W., *see* Song, S.H., *TMECH Feb. 2021 267-275*
Shyrokau, B., *see* Lazcano, A.M., *TMECH June 2021 1201-1211*
Si, J., *see* Gan, C., *TMECH April 2021 1118-1128*
Sim, O., *see* Oh, J., *TMECH Feb. 2021 102-112*
Sim, S., *see* Lee, S., *TMECH June 2021 1358-1368*
Simaan, N., *see* Giudice, G.D., *TMECH Oct. 2021 2604-2615*
Simetti, E., Campos, R., Vito, D.D., Quintana, J., Antonelli, G., Garcia, R., and Turetta, A., Sea Mining Exploration With an UVMS: Experimental Validation of the Control and Perception Framework; *TMECH June 2021 1635-1645*
Siqueira, A.A.G., *see* Escalante, F.M., *TMECH Feb. 2021 491-502*
Sivanantham, V., *see* Megalingam, R.K., *TMECH Feb. 2021 288-299*
Smit, G., *see* Vertongen, J., *TMECH April 2021 955-965*
Soldati, A., *see* Dalboni, M., *TMECH June 2021 1212-1224*
Song, C., *see* Huang, Y., *TMECH Aug. 2021 2174-2185*
Song, C., *see* Liu, S., *TMECH Oct. 2021 2747-2757*
Song, D., *see* Li, G., *TMECH June 2021 1479-1489*
Song, J., *see* Jeon, H., *TMECH June 2021 1401-1411*
Song, P., *see* Dong, X., *TMECH Feb. 2021 427-436*
Song, R., *see* Zhou, J., *TMECH Dec. 2021 3128-3138*
Song, S.H., Yeon, G.Y., Shon, H.W., and Choi, H.R., Design and Control of Soft Unmanned Aerial Vehicle "S-CLOUD" *TMECH Feb. 2021 267-275*
Song, Y., Wu, J., Liu, Z., Zhang, B., and Huang, T., Similitude Analysis Method of the Dynamics of a Hybrid Spray-Painting Robot Considering Electromechanical Coupling Effect; *TMECH Dec. 2021 2986-2997*
Sorniotti, A., *see* Dalboni, M., *TMECH June 2021 1212-1224*
Spinks, G.M., *see* Tawk, C., *TMECH April 2021 876-887*
Spyrakos-Papastavridis, E., *see* Fu, Z., *TMECH Oct. 2021 2688-2699*
Stelson, K.A., *see* Wang, F., *TMECH Feb. 2021 78-89*
Stevenson, D.T., *see* Chen, S., *TMECH Aug. 2021 1989-1996*
Stewart, V., *see* Shokrollahi, P., *TMECH Oct. 2021 2616-2628*
Stommel, M., *see* Hashem, R., *TMECH Oct. 2021 2327-2338*
Strada, S.C., *see* Pozzato, G., *TMECH April 2021 830-840*
Su, C., *see* Liu, Y., *TMECH April 2021 657-667*
Su, C., *see* Li, Z., *TMECH Oct. 2021 2700-2711*
Su, H., *see* Li, G., *TMECH Feb. 2021 255-266*
Su, H., *see* Liu, Y., *TMECH April 2021 657-667*
Su, H., *see* Chen, S., *TMECH Aug. 2021 1989-1996*
Sugano, S., *see* Kamezaki, M., *TMECH Dec. 2021 2857-2869*
Sugiura, K., *see* Shimonomura, S., *TMECH Aug. 2021 2163-2173*
Sun, C., Wang, C., Deng, Z., and Cao, D., Dimensionless Model-Based System Tracking Via Augmented Kalman Filter for Multiscale Unmanned Ground Vehicles; *TMECH April 2021 600-610*
Sun, F., *see* Zhao, C., *TMECH Feb. 2021 437-447*
Sun, L., *see* Li, G., *TMECH June 2021 1479-1489*
Sun, Q., *see* Gan, C., *TMECH April 2021 1118-1128*
Sun, X., *see* Liu, G., *TMECH June 2021 1602-1612*
Sun, Y., *see* Liu, X., *TMECH April 2021 1178-1182*
Sun, Y., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*
Sun, Y., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*
Sundarsingh, E.F., *see* Abirami B, S., *TMECH Oct. 2021 2814-2817*
Suzuki, K., *see* Chen, Y., *TMECH Aug. 2021 2007-2015*
Syed, D.F., *see* Mishra, S., *TMECH Aug. 2021 1914-1922*

T

Tadesse, Y., *see* Karami, F., *TMECH Feb. 2021 300-310*
Takagi, K., *see* Kato, T., *TMECH Oct. 2021 2451-2461*
Takazawa, J., *see* Miura, S., *TMECH April 2021 1013-1021*
Takeyama, T., O-Tani, H., Oishi, S., Hori, M., and Iizuka, A., Automatic Construction of Three-Dimensional Ground Model by Data Processing; *TMECH Dec. 2021 2881-2887*
Tan, J., *see* Liu, X., *TMECH June 2021 1536-1546*
Tan, J., *see* Liu, S., *TMECH Oct. 2021 2747-2757*
Tan, J.H., *see* Cai, C.J., *TMECH June 2021 1678-1688*
Tan, M., *see* Yan, S., *TMECH Oct. 2021 2506-2516*

Tan, Q., Zhang, X., Liu, H., Jiao, S., Zhou, M., and Li, J., Multimodal Dynamics Analysis and Control for Amphibious Fly-Drive Vehicle; *TMECH April 2021 621-632*

Tanabe, T., Yano, H., Endo, H., Ino, S., and Iwata, H., Pulling Illusion Based on the Phase Difference of the Frequency Components of Asymmetric Vibrations; *TMECH Feb. 2021 203-213*

Tanaka, H., *see* Shen, Y., *TMECH Oct. 2021 2350-2361*

Tanelli, M., *see* Pozzato, G., *TMECH April 2021 830-840*

Tang, B., *see* Lu, W., *TMECH June 2021 1613-1623*

Tang, C., Tian, G.Y., and Wu, J., Segmentation-Oriented Compressed Sensing for Efficient Impact Damage Detection on CFRP Materials ; *TMECH Oct. 2021 2528-2537*

Tang, H., He, S., Zhu, Z., Gao, J., Zhang, L., Cui, C., and Chen, X., A Monolithic Force Sensing Integrated Flexure Bonder Dedicated to Flip-Chip Active Soft-Landing Interconnection; *TMECH Feb. 2021 323-334*

Tang, J., *see* Zhao, C., *TMECH Feb. 2021 437-447*

Tao, B., *see* Zhang, Y., *TMECH April 2021 990-1001*

Tao, Q., Wang, J., Xu, Z., Lin, T.X., Yuan, Y., and Zhang, F., Swing-Reducing Flight Control System for an Underactuated Indoor Miniature Autonomous Blimp; *TMECH Aug. 2021 1895-1904*

Tao, Y., Li, H., and Zhu, L., Time/Space-Separation-Based Gaussian Process Modeling for the Cross-Coupling Effect of a 2-DOF Nanopositioning Stage; *TMECH Aug. 2021 2186-2194*

Tavernini, D., *see* Dalboni, M., *TMECH June 2021 1212-1224*

Tawk, C., Zhou, H., Sariyildiz, E., in het Panhuis, M., Spinks, G.M., and Alici, G., Design, Modeling, and Control of a 3D Printed Monolithic Soft Robotic Finger With Embedded Pneumatic Sensing Chambers; *TMECH April 2021 876-887*

Taylor, R.H., *see* Sefati, S., *TMECH Feb. 2021 369-380*

Taylor, R.H., *see* Wang, Y., *TMECH Aug. 2021 1858-1866*

Teja, P.S., *see* Megalingam, R.K., *TMECH Feb. 2021 288-299*

Teng, M., Ye, L., Yuxin, Z., Yanqing, J., Qianyi, Z., and Pascoal, A.M., Efficient Bathymetric SLAM With Invalid Loop Closure Identification; *TMECH Oct. 2021 2570-2580*

Terra, M.H., *see* Escalante, F.M., *TMECH Feb. 2021 491-502*

Thomas, D.G., *see* Rehan, M., *TMECH Aug. 2021 1803-1811*

Thomas, G.C., Mehling, J.S., Holley, J., and Sentis, L., Phase-Relaxed-Passive Full State Feedback Gain Limits for Series Elastic Actuators; *TMECH Feb. 2021 586-591*

Tian, G., *see* Gao, S., *TMECH Feb. 2021 448-457*

Tian, G.Y., *see* Tang, C., *TMECH Oct. 2021 2528-2537*

Tian, H., *see* Xia, J., *TMECH Oct. 2021 2803-2813*

Tian, X., and Zhan, Q., A Hermaphrodite Electromechanical Connector for Self-Reconfigurable Robot Modules ; *TMECH Dec. 2021 3276-3281*

Tian, Y., *see* Liu, S., *TMECH Feb. 2021 146-155*

Tian, Y., *see* Scharff, R.B.N., *TMECH Aug. 2021 1877-1885*

Tian, Y., *see* Liu, Z., *TMECH Aug. 2021 2195-2203*

Tijjani, A.S., Chemori, A., and Creuze, V., Robust Adaptive Tracking Control of Underwater Vehicles: Design, Stability Analysis, and Experiments; *TMECH April 2021 897-907*

Tilli, A., *see* Bosso, A., *TMECH June 2021 1501-1511*

Timonen, J., *see* Cenev, Z., *TMECH Aug. 2021 1932-1940*

Tisnes, S.D., Petit, L., Prelle, C., and Lamarque, F., Modeling and Experimental Validation of a Planar Microconveyor Based on a 2 × 2 Array of Digital Electromagnetic Actuators; *TMECH June 2021 1422-1432*

Tiwari, B., Blot, M., Laurent, G.J., Agnus, J., Sandoz, P., Lutz, P., and Clevy, C., A High Range-to-Resolution Multiaxis μForce and Torque Sensing Platform; *TMECH Aug. 2021 1837-1845*

Tomizuka, M., *see* Kuang, Z., *TMECH Feb. 2021 358-368*

Tong, L., *see* Liu, K., *TMECH Dec. 2021 2944-2955*

Tong, S., *see* Liu, Y., *TMECH Feb. 2021 168-178*

Toriumi, F.Y., and Angelico, B.A., Passivity-Based Nonlinear Control Approach for Tracking Task of an Underactuated CMG; *TMECH Oct. 2021 2285-2293*

Towfighian, S., *see* Hossain, N.A., *TMECH Dec. 2021 2967-2976*

Tran, V.P., Santoso, F., Garratt, M.A., and Petersen, I.R., Distributed Formation Control Using Fuzzy Self-Tuning of Strictly Negative Imaginary Consensus Controllers in Aerial Robotics; *TMECH Oct. 2021 2306-2315*

Trejos, A.L., *see* Edmonds, B.P.R., *TMECH April 2021 966-977*

Tremblay, C.C., *see* Shi, Y., *TMECH Feb. 2021 214-225*

Trinidad, J., *see* Olaizola, J., *TMECH Oct. 2021 2418-2428*

Trkov, M., *see* Chen, S., *TMECH Aug. 2021 1989-1996*

Trumper, D.L., *see* Zhou, L., *TMECH April 2021 1084-1094*

Trumper, D.L., *see* Bhushan, B.M., *TMECH Oct. 2021 2362-2372*

Tsai, W., Wu, C., and Cheng, M., Tracking Accuracy Improvement Based on Adaptive Nonlinear Sliding Mode Control; *TMECH Feb. 2021 179-190*

Tsao, T., *see* Gerber, M.J., *TMECH Oct. 2021 2758-2769*

Tu, L., Du, H., Dong, M., Ning, D., Wu, Y., Li, W., and Huang, H., Semiactively Controllable Vehicle Seat Suspension System With Negative Stiffness Magnetic Spring ; *TMECH Feb. 2021 156-167*

Turetta, A., *see* Simetti, E., *TMECH June 2021 1635-1645*

Tysse, G.O., Cibicik, A., and Egeland, O., Vision-Based Control of a Knuckle Boom Crane With Online Cable Length Estimation; *TMECH Feb. 2021 416-426*

U

Ustinov, S., *see* Malysheva, J., *TMECH Oct. 2021 2385-2395*

Uvet, H., *see* Demircali, A.A., *TMECH Dec. 2021 2956-2966*

Uzunovic, T., *see* Sariyildiz, E., *TMECH Aug. 2021 2139-2150*

V

Vadamalu, R.S., and Beidl, C., Adaptive Harmonic and Disturbance Estimators for Rotary Machines With Applications to Engines; *TMECH Feb. 2021 381-392*

Vadivel, S.R.R., *see* Megalingam, R.K., *TMECH Feb. 2021 288-299*

Vailati, L.G., and Goldfarb, M., A Method for Mass Flow and Displacement Estimation in a Pneumatic Actuation System Using Valve-Based Pressure Sensing; *TMECH Feb. 2021 235-245*

Vallery, H., *see* Vertongen, J., *TMECH April 2021 955-965*

Vanderborght, B., *see* Chen, X., *TMECH Aug. 2021 1705-1707*

Vanderborght, B., *see* Crispel, S., *TMECH Aug. 2021 1980-1988*

Varadharajan, A., *see* Crispel, S., *TMECH Aug. 2021 1980-1988*

Varol, R., *see* Demircali, A.A., *TMECH Dec. 2021 2956-2966*

Venancio, M.M., Gonalves, R.S., Bianchi, R.A.d.C., Terrain Identification for Humanoid Robots Applying Convolutional Neural Networks; *TMECH June 2021 1433-1444*

Verstraten, T., *see* Crispel, S., *TMECH Aug. 2021 1980-1988*

Vertongen, J., Kamper, D.G., Smit, G., and Vallery, H., Mechanical Aspects of Robot Hands, Active Hand Orthoses, and Prostheses: A Comparative Review; *TMECH April 2021 955-965*

Vikrant, K.S., Hithiksha, K., and Jayanth, G.R., An Automated AFM Tip-Replacement System for *In Situ* Tip-Replacement; *TMECH April 2021 798-806*

Vito, D.D., *see* Simetti, E., *TMECH June 2021 1635-1645*

W

Wagner, J.R., *see* Wang, C., *TMECH April 2021 777-788*

Walker, I.D., *see* Wang, C., *TMECH April 2021 777-788*

Wang, A., *see* Zhao, W., *TMECH June 2021 1558-1569*

Wang, B., *see* Wang, C., *TMECH April 2021 908-917*

Wang, B., *see* Huo, X., *TMECH Dec. 2021 2899-2909*

Wang, C., Frazelle, C.G., Wagner, J.R., and Walker, I.D., Dynamic Control of Multisection Three-Dimensional Continuum Manipulators Based on Virtual Discrete-Jointed Robot Models; *TMECH April 2021 777-788*

Wang, C., *see* Sun, C., *TMECH April 2021 600-610*

Wang, C., Wang, B., Deng, Z., and Fu, M., A Delaunay Triangulation-Based Matching Area Selection Algorithm for Underwater Gravity-Aided Inertial Navigation; *TMECH April 2021 908-917*

Wang, C., *see* Zheng, S., *TMECH Dec. 2021 3031-3039*

Wang, C.C., *see* Scharff, R.B.N., *TMECH Aug. 2021 1877-1885*

Wang, D., *see* Wang, Y., *TMECH April 2021 719-729*
Wang, D., *see* Yue, Y., *TMECH April 2021 978-989*
Wang, D., *see* Lu, W., *TMECH June 2021 1613-1623*
Wang, F., *see* Liu, S., *TMECH Feb. 2021 146-155*
Wang, F., Zhang, H., Xu, B., and Stelson, K.A., Steady-State Characteristics Study of a Power Split Hydraulic Transmission; *TMECH Feb. 2021 78-89*
Wang, F., *see* Huang, Y., *TMECH Feb. 2021 33-44*
Wang, F., Qian, Z., Lin, Y., and Zhang, W., Design and Rapid Construction of a Cost-Effective Virtual Haptic Device; *TMECH Feb. 2021 66-77*
Wang, F., *see* Liu, Z., *TMECH Aug. 2021 2195-2203*
Wang, G., Chadli, M., and Basin, M.V., Practical Terminal Sliding Mode Control of Nonlinear Uncertain Active Suspension Systems With Adaptive Disturbance Observer; *TMECH April 2021 789-797*
Wang, H., Wang, X., Yang, W., Du, Z., and Yan, Z., Construction of Controller Model of Notch Continuum Manipulator for Laryngeal Surgery Based on Hybrid Method; *TMECH April 2021 1022-1032*
Wang, H., *see* Oncken, J., *TMECH June 2021 1248-1259*
Wang, H., *see* Zhou, S., *TMECH June 2021 1467-1478*
Wang, H., *see* Bao, J., *TMECH June 2021 1570-1580*
Wang, H., *see* Han, L., *TMECH Aug. 2021 2016-2026*
Wang, J., and Han, Q., Neurodynamics-Based Model Predictive Control of Continuous-Time Under-Actuated Mechatronic Systems; *TMECH Feb. 2021 311-322*
Wang, J., *see* Wang, J., *TMECH Feb. 2021 311-322*
Wang, J., *see* Gong, X., *TMECH June 2021 1271-1282*
Wang, J., *see* Guo, J., *TMECH Aug. 2021 2151-2162*
Wang, J., *see* Tao, Q., *TMECH Aug. 2021 1895-1904*
Wang, J., *see* Yan, S., *TMECH Oct. 2021 2506-2516*
Wang, J., *see* Chen, J., *TMECH Oct. 2021 2770-2781*
Wang, L., *see* Liu, Z., *TMECH April 2021 1140-1150*
Wang, L., *see* Du, H., *TMECH June 2021 1455-1466*
Wang, L., *see* Li, T., *TMECH Dec. 2021 3040-3050*
Wang, L., *see* Cao, C., *TMECH Dec. 2021 3151-3162*
Wang, M., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*
Wang, M., *see* Ba, W., *TMECH Dec. 2021 3010-3021*
Wang, N., *see* Lu, Z., *TMECH Dec. 2021 3265-3275*
Wang, N., and Ahn, C.K., Coordinated Trajectory-Tracking Control of a Marine Aerial-Surface Heterogeneous System; *TMECH Dec. 2021 3198-3210*
Wang, Q., *see* Gao, S., *TMECH Feb. 2021 448-457*
Wang, Q., *see* Liu, W., *TMECH Aug. 2021 1846-1857*
Wang, Q., *see* Gao, S., *TMECH Oct. 2021 2429-2439*
Wang, Q., *see* Zheng, E., *TMECH Oct. 2021 2373-2384*
Wang, T., Liu, Y., Xu, Q., and Han, D., Novel Structure for Waveform Control of Twin Rotary Flowrate Valve Controlled Vibration Exciter; *TMECH April 2021 1183-1188*
Wang, T.D., *see* Birla, M., *TMECH June 2021 1445-1454*
Wang, X., *see* Dong, X., *TMECH Feb. 2021 427-436*
Wang, X., *see* Wang, H., *TMECH April 2021 1022-1032*
Wang, X., *see* Lu, W., *TMECH June 2021 1613-1623*
Wang, X., and Zhou, K., Electrical Parameter Identification of Medium-Frequency DC Resistance Spot Welding System Using Intelligent Algorithm; *TMECH Aug. 2021 1791-1802*
Wang, X., *see* Zhou, J., *TMECH Dec. 2021 3128-3138*
Wang, Y., Yue, Y., Shan, M., He, L., and Wang, D., Formation Reconstruction and Trajectory Replanning for Multi-UAV Patrol; *TMECH April 2021 719-729*
Wang, Y., *see* Zhu, Y., *TMECH April 2021 1151-1160*
Wang, Y., *see* Yue, Y., *TMECH April 2021 978-989*
Wang, Y., Xu, L., Zhang, F., Dong, H., Liu, Y., and Yin, G., An Adaptive Fault-Tolerant EKF for Vehicle State Estimation With Partial Missing Measurements; *TMECH June 2021 1318-1327*
Wang, Y., *see* Chen, J., *TMECH Aug. 2021 1737-1744*
Wang, Y., *see* Chen, S., *TMECH Aug. 2021 1745-1753*
Wang, Y., Yip, H., Zheng, H., Lin, H., Taylor, R.H., and Au, K.W.S., Design and Experimental Validation of a Miniaturized Robotic Tendon-Driven Articulated Surgical Drill for Enhancing Distal Dexterity in Minimally Invasive Spine Fusion; *TMECH Aug. 2021 1858-1866*
Wang, Y., *see* Ma, B., *TMECH Aug. 2021 1968-1979*
Wang, Y., *see* Pal, A., *TMECH Dec. 2021 3116-3127*
Wang, Z., *see* Gao, S., *TMECH Feb. 2021 448-457*
Wang, Z., Zou, Y., Liu, Y., and Meng, Z., Distributed Control Algorithm for Leader–Follower Formation Tracking of Multiple Quadrotors: Theory and Experiment; *TMECH April 2021 1095-1105*
Wang, Z., *see* Li, J., *TMECH June 2021 1591-1601*
Wang, Z., Hu, C., Zhu, Y., and Zhu, L., Prediction-Model-Based Contouring Error Iterative Precompensation Scheme for Precision Multiaxis Motion Systems; *TMECH Oct. 2021 2274-2284*
Wang, Z., *see* Liu, S., *TMECH Oct. 2021 2747-2757*
Wasserfall, F., *see* Ahlers, D., *TMECH Aug. 2021 1886-1894*
Wei, J., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*
Wei, S., *see* Zhu, H., *TMECH Oct. 2021 2712-2723*
Wei, Y., and Xu, Q., Design and Testing of a New Force-Sensing Cell Microinjector Based on Small-Stiffness Compliant Mechanism; *TMECH April 2021 818-829*
Wen, B., *see* Zhang, X., *TMECH April 2021 807-817*
Wen, S., *see* Farivar, F., *TMECH June 2021 1350-1357*
Weng, C., *see* Dong, H., *TMECH Aug. 2021 2215-2225*
Widanage, W.D., *see* Liu, K., *TMECH Dec. 2021 2944-2955*
Williams, H., *see* Zhou, Q., *TMECH June 2021 1225-1235*
Willing, R., *see* Hossain, N.A., *TMECH Dec. 2021 2967-2976*
Wong, C., Mineo, C., Yang, E., Yan, X., and Gu, D., A Novel Clustering-Based Algorithm for Solving Spatially Constrained Robotic Task Sequencing Problems; *TMECH Oct. 2021 2294-2305*
Wong, P.K., *see* Huang, W., *TMECH Aug. 2021 2071-2079*
Wu, C., *see* Tsai, W., *TMECH Feb. 2021 179-190*
Wu, C., *see* Chen, J., *TMECH Aug. 2021 1737-1744*
Wu, J., *see* Liu, Z., *TMECH April 2021 1140-1150*
Wu, J., *see* Gan, C., *TMECH April 2021 1118-1128*
Wu, J., Liu, M., Zhu, Y., Zou, Z., Dai, M., Zhang, C., Jiang, Y., and Li, C., Globally Optimal Symbolic Hand-Eye Calibration; *TMECH June 2021 1369-1379*
Wu, J., *see* Scharff, R.B.N., *TMECH Aug. 2021 1877-1885*
Wu, J., *see* Zhang, C., *TMECH Aug. 2021 2226-2236*
Wu, J., Zhu, J., Xu, Z., and Xia, H., A DC-Biased Scanning Induction Thermographic System for Characterizing Surface Cracks in Ferromagnetic Components; *TMECH Oct. 2021 2782-2790*
Wu, J., *see* Tang, C., *TMECH Oct. 2021 2528-2537*
Wu, J., *see* Song, Y., *TMECH Dec. 2021 2986-2997*
Wu, L., *see* Karami, F., *TMECH Feb. 2021 300-310*
Wu, Q., *see* Xiao, X., *TMECH Oct. 2021 2483-2494*
Wu, X., *see* Li, Z., *TMECH Oct. 2021 2700-2711*
Wu, Y., *see* Tu, L., *TMECH Feb. 2021 156-167*
Wu, Y., Li, G., Zuo, Z., Liu, X., and Xu, P., Practical Fixed-Time Position Tracking Control of Permanent Magnet DC Torque Motor Systems; *TMECH Feb. 2021 563-573*
Wu, Y., *see* Lu, W., *TMECH June 2021 1613-1623*
Wu, Y., *see* Xiao, X., *TMECH Oct. 2021 2483-2494*
Wu, Y., *see* Liu, N., *TMECH Dec. 2021 3139-3150*
Wu, Z., *see* Yue, Y., *TMECH April 2021 978-989*
Wu, Z., *see* Yan, S., *TMECH Oct. 2021 2506-2516*

X

Xia, H., *see* Wu, J., *TMECH Oct. 2021 2782-2790*
Xia, J., Jiang, Z., Zhang, H., Zhu, R., and Tian, H., Dual Fast Marching Tree Algorithm for Human-Like Motion Planning of Anthropomorphic Arms With Task Constraints; *TMECH Oct. 2021 2803-2813*
Xia, X., *see* Yang, W., *TMECH Feb. 2021 246-254*
Xia, Z., *see* Xiong, J., *TMECH Dec. 2021 3211-3220*
Xian, B., and Yang, S., Robust Tracking Control of a Quadrotor Unmanned Aerial Vehicle-Suspended Payload System; *TMECH Oct. 2021 2653-2663*
Xiao, X., *see* Cai, C.J., *TMECH June 2021 1678-1688*

Xiao, X., Li, C., Gu, X., Yan, Y., Wu, Y., Wu, Q., Chiong, E., and Ren, H., A Tubular Dual-Roller Bending Mechanism Toward Robotic Transurethral Prostate Biopsy; *TMECH Oct. 2021 2483-2494*
Xie, G., Shangguan, A., Fei, R., Hei, X., Ji, W., and Qian, F., Unmanned System Safety Decision-Making Support: Analysis and Assessment of Road Traffic Accidents; *TMECH April 2021 633-644*
Xie, H., Li, W., Jiang, C., Zhu, D., Yin, Z., and Ding, H., Pose Error Estimation Using a Cylinder in Scanner-Based Robotic Belt Grinding; *TMECH Feb. 2021 515-526*
Xie, S., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*
Xie, Z., *see* Jin, L., *TMECH Feb. 2021 90-101*
Xie, Z., *see* Zhao, J., *TMECH Aug. 2021 2038-2047*
Xin, J., *see* Muhammad, I., *TMECH Dec. 2021 2845-2856*
Xing, Y., *see* Huang, C., *TMECH April 2021 611-620*
Xinge, Z., *see* Muhammad, I., *TMECH Dec. 2021 2845-2856*
Xiong, C., *see* Cao, Y., *TMECH Feb. 2021 574-585*
Xiong, J., Xu, C., Ibrahim, K., Deng, H., and Xia, Z., A Mechanism-Image Fusion Approach to Calibration of an Ultrasound-Guided Dual-Arm Robotic Brachytherapy System; *TMECH Dec. 2021 3211-3220*
Xu, B., *see* Wang, F., *TMECH Feb. 2021 78-89*
Xu, B., *see* Ding, R., *TMECH Oct. 2021 2558-2569*
Xu, C., *see* Xiong, J., *TMECH Dec. 2021 3211-3220*
Xu, F., *see* Zhao, C., *TMECH Feb. 2021 437-447*
Xu, G., *see* Liu, F., *TMECH Feb. 2021 113-123*
Xu, H., *see* Zhou, Q., *TMECH June 2021 1225-1235*
Xu, J., *see* Jiang, N., *TMECH Oct. 2021 2641-2652*
Xu, K., *see* Chen, J., *TMECH June 2021 1624-1634*
Xu, L., *see* Zhao, B., *TMECH April 2021 943-954*
Xu, L., *see* Zhou, Q., *TMECH June 2021 1225-1235*
Xu, L., *see* Wang, Y., *TMECH June 2021 1318-1327*
Xu, L., *see* Deng, Z., *TMECH June 2021 1295-1306*
Xu, P., *see* Wu, Y., *TMECH Feb. 2021 563-573*
Xu, Q., *see* Wei, Y., *TMECH April 2021 818-829*
Xu, Q., *see* Wang, T., *TMECH April 2021 1183-1188*
Xu, S., *see* Li, G., *TMECH June 2021 1479-1489*
Xu, W., *see* Liu, T., *TMECH April 2021 930-942*
Xu, W., *see* Hashem, R., *TMECH Oct. 2021 2327-2338*
Xu, Y., Guo, K., Li, J., and Li, Y., A Novel Rotational Actuator With Variable Stiffness Using S-Shaped Springs; *TMECH Aug. 2021 2249-2260*
Xu, Z., *see* Tao, Q., *TMECH Aug. 2021 1895-1904*
Xu, Z., *see* Wu, J., *TMECH Oct. 2021 2782-2790*
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Distributed Control Algorithm for Leader–Follower Formation Tracking of Multiple Quadrotors: Theory and Experiment. *Wang, Z.*, +, *TMECH April 2021 1095-1105*
Distributed Formation Control Using Fuzzy Self-Tuning of Strictly Negative Imaginary Consensus Controllers in Aerial Robotics. *Tran, V.P.*, +, *TMECH Oct. 2021 2306-2315*
Dynamic Control of Multisection Three-Dimensional Continuum Manipulators Based on Virtual Discrete-Jointed Robot Models. *Wang, C.*, +, *TMECH April 2021 777-788*
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Static Position Sensor Bias Fault Diagnosis in Permanent Magnet Synchronous Machines via Current Estimation. *Kuruppu, S.S.*, +, *TMECH April 2021 888-896*

Takagi–Sugeno Fuzzy Unknown Input Observers to Estimate Nonlinear Dynamics of Autonomous Ground Vehicles: Theory and Real-Time Verification. *Nguyen, A.*, +, *TMECH June 2021 1328-1338*

Unsupervised Cross-Domain Fault Diagnosis Using Feature Representation Alignment Networks for Rotating Machinery. *Chen, J.*, +, *TMECH Oct. 2021 2770-2781*

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Individual Auxiliary and Fault-Tolerant Control of Steer-by-Wire System Considering Different Drivers Steering Characteristics. *Zhao, W.*, +, *TMECH June 2021 1558-1569*

Modeling and Adaptive Fault Compensation for Two Physically Linked 2WD Mobile Robots. *Ma, Y.*, +, *TMECH April 2021 1161-1171*

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A Method for Mass Flow and Displacement Estimation in a Pneumatic Actuation System Using Valve-Based Pressure Sensing. *Vailati, L.G.*, +, *TMECH Feb. 2021 235-245*

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Model-Free Control of Flexible Manipulator Based on Intrinsic Design. *Jiang, N.*, +, *TMECH Oct. 2021 2641-2652*
Nonlinear Model Predictive Control for Integrated Energy-Efficient Torque-Vectoring and Anti-Roll Moment Distribution. *Dalboni, M.*, +, *TMECH June 2021 1212-1224*
Online Compensation of Mechanical Load Defects With Composite Control in PMSM Drives. *Kommuri, S.K.*, +, *TMECH June 2021 1392-1400*
Optimal Current Allocation Rendering 3-D Magnetic Force Production in Hexapole Electromagnetic Actuation. *Long, F.*, +, *TMECH Oct. 2021 2408-2417*
Practical Terminal Sliding Mode Control of Nonlinear Uncertain Active Suspension Systems With Adaptive Disturbance Observer. *Wang, G.*, +, *TMECH April 2021 789-797*
Rotor Position Tracking Control for Low Speed Operation of Direct-Drive PMSM Servo System. *Bu, F.*, +, *TMECH April 2021 1129-1139*
Sliding-Mode-Disturbance-Observer-Based Robust Tracking Control for Omnidirectional Mobile Robots With Kinematic and Dynamic Uncertainties. *Jeong, S.*, +, *TMECH April 2021 741-752*
Takagi–Sugeno Fuzzy-Based Robust $H\infty$ Integrated Lane-Keeping and Direct Yaw Moment Controller of Unmanned Electric Vehicles. *Guo, J.*, +, *TMECH Aug. 2021 2151-2162*
Topology Optimization for Design of a 3D-Printed Constant-Force Compliant Finger. *Liu, C.*, +, *TMECH Aug. 2021 1828-1836*
Virtual Landmark-Based Control of Docking Support for Assistive Mobility Devices. *Chen, Y.*, +, *TMECH Aug. 2021 2007-2015*
Vision-Based Cutting Control of Deformable Objects With Surface Tracking. *Han, L.*, +, *TMECH Aug. 2021 2016-2026*

Feedforward

Iterative Learning Control for Video-Rate Atomic Force Microscopy. *Nikooienejad, N.*, +, *TMECH Aug. 2021 2127-2138*
Online Compensation of Mechanical Load Defects With Composite Control in PMSM Drives. *Kommuri, S.K.*, +, *TMECH June 2021 1392-1400*
Position-Tracking Control of Dual-Rope Winch Robot With Rope Slip Compensation. *Yoo, S.*, +, *TMECH Aug. 2021 1754-1762*

Feedforward neural networks

Generative Adversarial Network for Prediction of Workpiece Surface Topography in Machining Stage. *Cao, L.*, +, *TMECH Feb. 2021 480-490*

Feedforward systems

Development of FW and MTPV Control for SynRM via Feedforward Voltage Angle Control. *Chen, S.*, +, *TMECH Dec. 2021 3254-3264*
Kinematic Modeling and Control of Variable Curvature Soft Continuum Robots. *Huang, X.*, +, *TMECH Dec. 2021 3175-3185*

Feeds

Data-Driven Iterative Trajectory Shaping for Precision Control of Flexible Feed Drives. *Dumanli, A.*, +, *TMECH Oct. 2021 2735-2746*

Fiber optic sensors

A Surgical Robotic System for Treatment of Pelvic Osteolysis Using an FBG-Equipped Continuum Manipulator and Flexible Instruments. *Sefati, S.*, +, *TMECH Feb. 2021 369-380*

Field effect transistors

Robotic Prototyping of Paper-Based Field-Effect Transistors With Rolled-Up Semiconductor Microtubes. *Dong, X.*, +, *TMECH Feb. 2021 427-436*

Field programmable gate arrays

A Lightweight Wireless Overpressure Node Based Efficient Monitoring for Shock Waves. *Gao, S.*, +, *TMECH Feb. 2021 448-457*
Optimal Current Allocation Rendering 3-D Magnetic Force Production in Hexapole Electromagnetic Actuation. *Long, F.*, +, *TMECH Oct. 2021 2408-2417*
UltraLow Noise, High Bandwidth, Low Latency, No Overload 6-Axis Optical Force Sensor. *Hosseinabadi, A.H.H.*, +, *TMECH Oct. 2021 2581-2592*

Finite element analysis

A Microgripper With a Large Magnification Ratio and High Structural Stiffness Based on a Flexure-Enabled Mechanism. *Shi, C.*, +, *TMECH Dec. 2021 3076-3086*
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A Piezoelectric Microultrasonic Motor With High Q and Good Mode Match. *Zhou, W.*, +, *TMECH Aug. 2021 1773-1781*
A Two-Finger Soft-Robotic Gripper With Enveloping and Pinching Grasping Modes. *Liu, S.*, +, *TMECH Feb. 2021 146-155*
An Integrated Design and Fabrication Strategy for Planar Soft Dielectric Elastomer Actuators. *Chen, F.*, +, *TMECH Oct. 2021 2629-2640*

Curvature-Induced Buckling for Flapping-Wing Vehicles. *Sharifzadeh, M.*, +, *TMECH Feb. 2021 503-514*
Design Process and Verification of SPMSM for a Wearable Robot Considering Thermal Characteristics Through LPTN. *Hwang, S.*, +, *TMECH April 2021 1033-1042*
Design, Modeling, and Control of a 3D Printed Monolithic Soft Robotic Finger With Embedded Pneumatic Sensing Chambers. *Tawk, C.*, +, *TMECH April 2021 876-887*
Design, Modeling, and Experiments of Electromagnetic Energy Harvester Embedded in Smart Watch and Wristband as Power Source. *Cai, M.*, +, *TMECH Aug. 2021 2104-2114*
Estimation of the Electrostatic Effects in the LISA-Pathfinder Critical Test Mass Dynamics via the Method of Moments. *Zanoni, C.*, +, *TMECH Dec. 2021 3022-3030*
Magnetically Levitated Linear Stage With Linear Bearingless Slice Hysteresis Motors. *Zhou, L.*, +, *TMECH April 2021 1084-1094*
Measurement of Peristaltic Forces Exerted by Living Intestine on Robotic Capsule. *Rehan, M.*, +, *TMECH Aug. 2021 1803-1811*
Modeling and Analysis of Soft Pneumatic Network Bending Actuators. *Liu, Z.*, +, *TMECH Aug. 2021 2195-2203*
Static Pull-In Behavior of Hybrid Levitation Microactuators: Simulation, Modeling, and Experimental Study. *Poletkin, K.V., TMECH April 2021 753-764*
Study on a Double-Sided Permanent-Magnet Linear Synchronous Motor With Reversed Slots. *Zhao, J.*, +, *TMECH Feb. 2021 3-12*
Testing of a Strained Silicon Based 3-D Stress Sensor for Out-of-Plane Stress Measurements. *Balbola, A.A.*, +, *TMECH April 2021 1076-1083*
Topology Optimization of Skeleton-Reinforced Soft Pneumatic Actuators for Desired Motions. *Chen, S.*, +, *TMECH Aug. 2021 1745-1753*

Flash memories
A Lightweight Wireless Overpressure Node Based Efficient Monitoring for Shock Waves. *Gao, S.*, +, *TMECH Feb. 2021 448-457*

Flaw detection
A DC-Biased Scanning Induction Thermographic System for Characterizing Surface Cracks in Ferromagnetic Components. *Wu, J.*, +, *TMECH Oct. 2021 2782-2790*
Segmentation-Oriented Compressed Sensing for Efficient Impact Damage Detection on CFRP Materials. *Tang, C.*, +, *TMECH Oct. 2021 2528-2537*

Flexible electronics
Robotic Prototyping of Paper-Based Field-Effect Transistors With Rolled-Up Semiconductor Microtubes. *Dong, X.*, +, *TMECH Feb. 2021 427-436*

Flexible manipulators
Dynamic Control of Multisection Three-Dimensional Continuum Manipulators Based on Virtual Discrete-Jointed Robot Models. *Wang, C.*, +, *TMECH April 2021 777-788*
Model-Free Control of Flexible Manipulator Based on Intrinsic Design. *Jiang, N.*, +, *TMECH Oct. 2021 2641-2652*
Optimization of Generalized S-Curve Trajectories for Residual Vibration Suppression and Compliance With Kinematic Bounds. *Biagiotti, L.*, +, *TMECH Oct. 2021 2724-2734*
Whole-Body Control of an Autonomous Mobile Manipulator Using Series Elastic Actuators. *Liu, Y.*, +, *TMECH April 2021 657-667*

Flip-chip devices
A Monolithic Force Sensing Integrated Flexure Bonder Dedicated to Flip-Chip Active Soft-Landing Interconnection. *Tang, H.*, +, *TMECH Feb. 2021 323-334*

Flow control
Design and Control of Soft Unmanned Aerial Vehicle "S-CLOUD". *Song, S.H.*, +, *TMECH Feb. 2021 267-275*

Fluid flow
Longitudinal Motion Modeling and Experimental Verification of a Microrobot Subject to Liquid Laminar Flow. *Demircali, A.A.*, +, *TMECH Dec. 2021 2956-2966*

Fluids
Failure Monitoring and Predictive Maintenance of Hydraulic Cylinder—State-of-the-Art Review. *Shanbhag, V.V.*, +, *TMECH Dec. 2021 3087-3103*

Fluorescence
Image Processing Metrics for Phase Identification of a Multiaxis MEMS Scanner Used in Single Pixel Imaging. *Birla, M.*, +, *TMECH June 2021 1445-1454*

Force
A Microgripper With a Large Magnification Ratio and High Structural Stiffness Based on a Flexure-Enabled Mechanism. *Shi, C.*, +, *TMECH Dec. 2021 3076-3086*
Intelligent Vibration Control for Semiactive Suspension Systems Without Prior Knowledge of Dynamical Nonlinear Damper Behaviors Based on Improved Extreme Learning Machine. *Huang, W.*, +, *TMECH Aug. 2021 2071-2079*
Investigation on a New Approach for Designing Articulated Soft Robots With Discrete Variable Stiffness. *Zhong, Y.*, +, *TMECH Dec. 2021 2998-3009*
Longitudinal Motion Modeling and Experimental Verification of a Microrobot Subject to Liquid Laminar Flow. *Demircali, A.A.*, +, *TMECH Dec. 2021 2956-2966*
Modified Stiffness-Based Soft Optical Waveguide Integrated Pneumatic Artificial Muscle (PAM) Actuators for Contraction and Force Sensing. *Jamil, B.*, +, *TMECH Dec. 2021 3243-3253*
Optimized Interaction Control for Robot Manipulator Interacting With Flexible Environment. *Liu, X.*, +, *TMECH Dec. 2021 2888-2898*
Plate-Springed Parallel Elastic Actuator for Efficient Snake Robot Movement. *Kakogawa, A.*, +, *TMECH Dec. 2021 3051-3063*
Simultaneous State Estimation and Tire Model Learning for Autonomous Vehicle Applications. *Jeon, W.*, +, *TMECH Aug. 2021 1941-1950*

Force control
A Monolithic Force Sensing Integrated Flexure Bonder Dedicated to Flip-Chip Active Soft-Landing Interconnection. *Tang, H.*, +, *TMECH Feb. 2021 323-334*
An Electrical Impedance Tomography Based Interface for Human–Robot Collaboration. *Zheng, E.*, +, *TMECH Oct. 2021 2373-2384*
Design, Modeling, and Control of a 3D Printed Monolithic Soft Robotic Finger With Embedded Pneumatic Sensing Chambers. *Tawk, C.*, +, *TMECH April 2021 876-887*
Dynamic Modeling and State Estimation of Cable-Conduit Actuation During Interaction With Nonpassive Environments. *Buchanan, S.*, +, *TMECH Oct. 2021 2462-2471*
Human-in-the-Loop Control of a Wearable Lower Limb Exoskeleton for Stable Dynamic Walking. *Li, Z.*, +, *TMECH Oct. 2021 2700-2711*
Optimized Power Modulation in Wave-Based Bilateral Teleoperation. *Ferraguti, F.*, +, *TMECH Feb. 2021 276-287*
Proportional-Integral Approximation-Free Control of Robotic Systems With Unknown Dynamics. *Zhang, C.*, +, *TMECH Aug. 2021 2226-2236*
Soft Robotic Palm With Tunable Stiffness Using Dual-Layered Particle Jamming Mechanism. *Lee, J.*, +, *TMECH Aug. 2021 1820-1827*
Topology Optimization for Design of a 3D-Printed Constant-Force Compliant Finger. *Liu, C.*, +, *TMECH Aug. 2021 1828-1836*
Unified Motion/Force/Impedance Control for Manipulators in Unknown Contact Environments Based on Robust Model-Reaching Approach. *Lin, Y.*, +, *TMECH Aug. 2021 1905-1913*

Force measurement
A High Range-to-Resolution Multiaxis μForce and Torque Sensing Platform. *Tiwari, B.*, +, *TMECH Aug. 2021 1837-1845*
A Suction-Based Peripheral Nerve Gripper Capable of Controlling the Suction Force. *Jang, N.*, +, *TMECH Aug. 2021 1867-1876*
Characterization of a Packaged Triboelectric Harvester Under Simulated Gait Loading for Total Knee Replacement. *Hossain, N.A.*, +, *TMECH Dec. 2021 2967-2976*
Design and Testing of a New Force-Sensing Cell Microinjector Based on Small-Stiffness Compliant Mechanism. *Wei, Y.*, +, *TMECH April 2021 818-829*
Modeling and Motion Control of Industrial Tractor–Trailers Vehicles Using Force Compensation. *Zhao, H.*, +, *TMECH April 2021 645-656*

Stochastic Force-Based Insertion Depth and Tip Position Estimations of Flexible FBG-Equipped Instruments in Robotic Retinal Surgery. *Ebrahimi, A.*, +, *TMECH June 2021 1512-1523*
UltraLow Noise, High Bandwidth, Low Latency, No Overload 6-Axis Optical Force Sensor. *Hosseinabadi, A.H.H.*, +, *TMECH Oct. 2021 2581-2592*

Force sensors
A High Range-to-Resolution Multiaxis μForce and Torque Sensing Platform. *Tiwari, B.*, +, *TMECH Aug. 2021 1837-1845*
A Monolithic Force Sensing Integrated Flexure Bonder Dedicated to Flip-Chip Active Soft-Landing Interconnection. *Tang, H.*, +, *TMECH Feb. 2021 323-334*
A Suction-Based Peripheral Nerve Gripper Capable of Controlling the Suction Force. *Jang, N.*, +, *TMECH Aug. 2021 1867-1876*
Design and Testing of a New Force-Sensing Cell Microinjector Based on Small-Stiffness Compliant Mechanism. *Wei, Y.*, +, *TMECH April 2021 818-829*
Development of Embedded Sensor System for 5-DOF Finger-Wearable Tactile Interface. *Lim, B.*, +, *TMECH Aug. 2021 1728-1736*
MEMS-Enabled Retrofitting of Automobile Wheel Balancer for Automatic Unbalance Detection. *Pozzato, G.*, +, *TMECH April 2021 830-840*
Modeling and Motion Control of Industrial Tractor–Trailers Vehicles Using Force Compensation. *Zhao, H.*, +, *TMECH April 2021 645-656*
The MUSHA Hand II:A Multifunctional Hand for Robot-Assisted Laparoscopic Surgery. *Liu, H.*, +, *TMECH Feb. 2021 393-404*
UltraLow Noise, High Bandwidth, Low Latency, No Overload 6-Axis Optical Force Sensor. *Hosseinabadi, A.H.H.*, +, *TMECH Oct. 2021 2581-2592*

Fourier analysis
A High Range-to-Resolution Multiaxis μForce and Torque Sensing Platform. *Tiwari, B.*, +, *TMECH Aug. 2021 1837-1845*

Fourier series
A Lie-Theory-Based Dynamic Parameter Identification Methodology for Serial Manipulators. *Fu, Z.*, +, *TMECH Oct. 2021 2688-2699*

Frequency response
Development of a Small and Lightweight Missile Fin Control Actuation System Driven by Novel Dielectric Elastomer Actuators. *Jung, H.S.*, +, *TMECH April 2021 1002-1012*
Identification of a Nonlinear Dielectric Elastomer Actuator Based on the Harmonic Balance Method. *Bernat, J.*, +, *TMECH Oct. 2021 2664-2675*

Frequency-domain analysis
Phase-Relaxed-Passive Full State Feedback Gain Limits for Series Elastic Actuators. *Thomas, G.C.*, +, *TMECH Feb. 2021 586-591*

Friction
A Lie-Theory-Based Dynamic Parameter Identification Methodology for Serial Manipulators. *Fu, Z.*, +, *TMECH Oct. 2021 2688-2699*
A Piezoelectric Microultrasonic Motor With High Q and Good Mode Match. *Zhou, W.*, +, *TMECH Aug. 2021 1773-1781*
Data-Driven Iterative Trajectory Shaping for Precision Control of Flexible Feed Drives. *Dumanli, A.*, +, *TMECH Oct. 2021 2735-2746*
Edge-Dependent Efficient Grasp Rectangle Search in Robotic Grasp Detection. *Chen, L.*, +, *TMECH Dec. 2021 2922-2931*
Localized Property Design and Gradient Processing of a Hydraulic Valve Body Using Selective Laser Melting. *Zhu, Y.*, +, *TMECH April 2021 1151-1160*
Nonlinear Model Predictive Control for Integrated Energy-Efficient Torque-Vectoring and Anti-Roll Moment Distribution. *Dalboni, M.*, +, *TMECH June 2021 1212-1224*
Position-Tracking Control of Dual-Rope Winch Robot With Rope Slip Compensation. *Yoo, S.*, +, *TMECH Aug. 2021 1754-1762*
Tracking Accuracy Improvement Based on Adaptive Nonlinear Sliding Mode Control. *Tsai, W.*, +, *TMECH Feb. 2021 179-190*

Fuel economy
Design Method for Reducing AC Resistance of Traction Motor Using High Fill Factor Coil to Improve the Fuel Economy of eBus. *Cha, K.*, +, *TMECH June 2021 1260-1270*
Real-Time Integrated Power and Thermal Management of Connected HEVs Based on Hierarchical Model Predictive Control. *Gong, X.*, +, *TMECH June 2021 1271-1282*

Function approximation
Proportional-Integral Approximation-Free Control of Robotic Systems With Unknown Dynamics. *Zhang, C.*, +, *TMECH Aug. 2021 2226-2236*

Fuzzy control
Adaptive Output Feedback Control of Steer-by-Wire Systems With Event-Triggered Communication. *Ma, B.*, +, *TMECH Aug. 2021 1968-1979*
Development of Embedded Sensor System for 5-DOF Finger-Wearable Tactile Interface. *Lim, B.*, +, *TMECH Aug. 2021 1728-1736*
Distributed Formation Control Using Fuzzy Self-Tuning of Strictly Negative Imaginary Consensus Controllers in Aerial Robotics. *Tran, V.P.*, +, *TMECH Oct. 2021 2306-2315*
Fractional-Order Control for Uncertain Teleoperated Cyber-Physical System With Actuator Fault. *Ma, Z.*, +, *TMECH Oct. 2021 2472-2482*
Quasi-LPV Interconnected Observer Design for Full Vehicle Dynamics Estimation With Hardware Experiments. *Fouka, M.*, +, *TMECH Aug. 2021 1763-1772*
Takagi–Sugeno Fuzzy Unknown Input Observers to Estimate Nonlinear Dynamics of Autonomous Ground Vehicles: Theory and Real-Time Verification. *Nguyen, A.*, +, *TMECH June 2021 1328-1338*
Takagi–Sugeno Fuzzy-Based Robust $H\infty$ Integrated Lane-Keeping and Direct Yaw Moment Controller of Unmanned Electric Vehicles. *Guo, J.*, +, *TMECH Aug. 2021 2151-2162*
Tracking Accuracy Improvement Based on Adaptive Nonlinear Sliding Mode Control. *Tsai, W.*, +, *TMECH Feb. 2021 179-190*

Fuzzy logic
On-Body RF Sensor Toward Tremor Detection in Parkinson's Disease. *Abirami B, S.*, +, *TMECH Oct. 2021 2814-2817*

Fuzzy set theory
Incorporating the Qualitative Variable Comfort Into the Design of a Wearable Body Sensor System. *Falch, L.*, +, *TMECH Feb. 2021 124-133*

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Gait analysis
A Compact Ankle Exoskeleton With a Multiaxis Parallel Linkage Mechanism. *Lee, M.*, +, *TMECH Feb. 2021 191-202*
Human-in-the-Loop Control of a Wearable Lower Limb Exoskeleton for Stable Dynamic Walking. *Li, Z.*, +, *TMECH Oct. 2021 2700-2711*
Mech-Walker:A Novel Single-DOF Linkage Device With Movable Frame for Gait Rehabilitation. *Haghjoo, M.R.*, +, *TMECH Feb. 2021 13-23*
Mechanism and Controller Design of a Transfemoral Prosthesis With Electrohydraulic Knee and Motor-Driven Ankle. *Gao, S.*, +, *TMECH Oct. 2021 2429-2439*
Parallel Compliance Design for Increasing Robustness and Efficiency in Legged Locomotion–Theoretical Background and Applications. *Sharbafi, M.A.*, +, *TMECH Feb. 2021 335-346*
Wearable Knee Assistive Devices for Kneeling Tasks in Construction. *Chen, S.*, +, *TMECH Aug. 2021 1989-1996*

Gaussian distribution
Basic Input–Output Gain Tuning System Based on Control Input Histogram Leveling for Human-Operated Machines. *Kamezaki, M.*, +, *TMECH Dec. 2021 2857-2869*

Gaussian processes
A Visual Servo-Based Predictive Control With Echo State Gaussian Process for Soft Bending Actuator. *Cao, Y.*, +, *TMECH Feb. 2021 574-585*
General Discharge Voltage Information Enabled Health Evaluation for Lithium-Ion Batteries. *Deng, Z.*, +, *TMECH June 2021 1295-1306*
Time/Space-Separation-Based Gaussian Process Modeling for the Cross-Coupling Effect of a 2-DOF Nanopositioning Stage. *Tao, Y.*, +, *TMECH Aug. 2021 2186-2194*

Gears
A New Position Detection and Status Monitoring System for Joint of SCARA. *Lu, W.*, +, *TMECH June 2021 1613-1623*
A Novel Rotational Actuator With Variable Stiffness Using S-Shaped Springs. *Xu, Y.*, +, *TMECH Aug. 2021 2249-2260*
A Novel Wolfrom-Based Gearbox for Robotic Actuators. *Crispel, S.*, +, *TMECH Aug. 2021 1980-1988*

An Investigation Into Fault Diagnosis of Planetary Gearboxes Using A Bispectrum Convolutional Neural Network. *Pang, X.*, +, *TMECH Aug. 2021 2027-2037*
Design Principles for Compact, Backdrivable Actuation in Partial-Assist Powered Knee Orthoses. *Zhu, H.*, +, *TMECH Dec. 2021 3104-3115*
Experimental Investigation on Control of an Infinitely Variable Transmission System for Tidal Current Energy Converters. *Li, G.*, +, *TMECH Aug. 2021 1960-1967*
Thermal Modeling and Characterization of Twisted Coiled Actuators for Upper Limb Wearable Devices. *Edmonds, B.P.R.*, +, *TMECH April 2021 966-977*

Genetic algorithms
A Monolithic Force Sensing Integrated Flexure Bonder Dedicated to Flip-Chip Active Soft-Landing Interconnection. *Tang, H.*, +, *TMECH Feb. 2021 323-334*
Multiobjective Scheduling Strategy With Genetic Algorithm and Time-Enhanced A* Planning for Autonomous Parking Robotics in High-Density Unmanned Parking Lots. *Chen, G.*, +, *TMECH June 2021 1547-1557*

Genomics
Blindly Controlled Magnetically Actuated Capsule for Noninvasive Sampling of the Gastrointestinal Microbiome. *Shokrollahi, P.*, +, *TMECH Oct. 2021 2616-2628*

Geology
Automatic Construction of Three-Dimensional Ground Model by Data Processing. *Takeyama, T.*, +, *TMECH Dec. 2021 2881-2887*

Geometry
A Laser-Guided Solution to Manipulate Mobile Robot Arm Terminals Within a Large Workspace. *Li, F.*, +, *TMECH Oct. 2021 2676-2687*
Generative Adversarial Network for Prediction of Workpiece Surface Topography in Machining Stage. *Cao, L.*, +, *TMECH Feb. 2021 480-490*
Geometrical-Based Displacement Measurement With Pseudostereo Monocular Camera on Bidirectional Cascaded Linear Actuator. *Lee, D.*, +, *TMECH Aug. 2021 1923-1931*

Global Positioning System
Covert Attacks Through Adversarial Learning: Study of Lane Keeping Attacks on the Safety of Autonomous Vehicles. *Farivar, F.*, +, *TMECH June 2021 1350-1357*
Optimal Design and Implementation of a Novel Two-Dimensional Electromagnetic Navigation System That Allows Focused Heating of Magnetic Nanoparticles. *Le, T.*, +, *TMECH Feb. 2021 551-562*

Gradient methods
Topology Optimization of Skeleton-Reinforced Soft Pneumatic Actuators for Desired Motions. *Chen, S.*, +, *TMECH Aug. 2021 1745-1753*

Graph theory
Efficient Bathymetric SLAM With Invalid Loop Closure Identification. *Teng, M.*, +, *TMECH Oct. 2021 2570-2580*
Interactive Behavior Prediction for Heterogeneous Traffic Participants in the Urban Road: A Graph-Neural-Network-Based Multitask Learning Framework. *Li, Z.*, +, *TMECH June 2021 1339-1349*

Grasping
A Microgripper With a Large Magnification Ratio and High Structural Stiffness Based on a Flexure-Enabled Mechanism. *Shi, C.*, +, *TMECH Dec. 2021 3076-3086*
Edge-Dependent Efficient Grasp Rectangle Search in Robotic Grasp Detection. *Chen, L.*, +, *TMECH Dec. 2021 2922-2931*

Gravity
A Delaunay Triangulation-Based Matching Area Selection Algorithm for Underwater Gravity-Aided Inertial Navigation. *Wang, C.*, +, *TMECH April 2021 908-917*
Magnetically Levitated Linear Drive Using an Active Gravity Compensation Based on Hybrid Shape Memory Actuators. *Raab, M.*, +, *TMECH June 2021 1380-1391*

Grinding
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Grippers
A Microgripper With a Large Magnification Ratio and High Structural Stiffness Based on a Flexure-Enabled Mechanism. *Shi, C.*, +, *TMECH Dec. 2021 3076-3086*
A Monolithic Force Sensing Integrated Flexure Bonder Dedicated to Flip-Chip Active Soft-Landing Interconnection. *Tang, H.*, +, *TMECH Feb. 2021 323-334*
A Suction-Based Peripheral Nerve Gripper Capable of Controlling the Suction Force. *Jang, N.*, +, *TMECH Aug. 2021 1867-1876*
A Two-Finger Soft-Robotic Gripper With Enveloping and Pinching Grasping Modes. *Liu, S.*, +, *TMECH Feb. 2021 146-155*
Compliant Bistable Grippers Enable Passive Perching for Micro Aerial Vehicles. *Zhang, H.*, +, *TMECH Oct. 2021 2316-2326*
Soft Robotic Palm With Tunable Stiffness Using Dual-Layered Particle Jamming Mechanism. *Lee, J.*, +, *TMECH Aug. 2021 1820-1827*
Topology Optimization for Design of a 3D-Printed Constant-Force Compliant Finger. *Liu, C.*, +, *TMECH Aug. 2021 1828-1836*

Gyroscopes
MEMS-Enabled Retrofitting of Automobile Wheel Balancer for Automatic Unbalance Detection. *Pozzato, G.*, +, *TMECH April 2021 830-840*
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H^{∞} control
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Handicapped aids
Virtual Landmark-Based Control of Docking Support for Assistive Mobility Devices. *Chen, Y.*, +, *TMECH Aug. 2021 2007-2015*

Haptic interfaces
Design and Rapid Construction of a Cost-Effective Virtual Haptic Device. *Wang, F.*, +, *TMECH Feb. 2021 66-77*
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Kernel Principal Components Analysis of Lateral Force Data for Quantitative Evaluation of 3D Features Rendering Fidelity. *Liu, G.*, +, *TMECH June 2021 1602-1612*

Hardness
Localized Property Design and Gradient Processing of a Hydraulic Valve Body Using Selective Laser Melting. *Zhu, Y.*, +, *TMECH April 2021 1151-1160*

Harmonic analysis
Adaptive Harmonic and Disturbance Estimators for Rotary Machines With Applications to Engines. *Vadamalu, R.S.*, +, *TMECH Feb. 2021 381-392*
Design Process and Verification of SPMSM for a Wearable Robot Considering Thermal Characteristics Through LPTN. *Hwang, S.*, +, *TMECH April 2021 1033-1042*

Heat transfer
Actuation Frequency Modeling and Prediction for Shape Memory Alloy Actuators. *Liu, X.*, +, *TMECH June 2021 1536-1546*

Helicopters
A Tilting-Rotor Unmanned Aerial Vehicle for Enhanced Aerial Locomotion and Manipulation Capabilities: Design, Control, and Applications. *Ding, C.*, +, *TMECH Aug. 2021 2237-2248*
Compliant Bistable Grippers Enable Passive Perching for Micro Aerial Vehicles. *Zhang, H.*, +, *TMECH Oct. 2021 2316-2326*
Design and Experimental Validation of Robust Self-Scheduled Fault-Tolerant Control Laws for a Multicopter UAV. *Nguyen, D.*, +, *TMECH Oct. 2021 2548-2557*
Distributed Control Algorithm for Leader–Follower Formation Tracking of Multiple Quadrotors: Theory and Experiment. *Wang, Z.*, +, *TMECH April 2021 1095-1105*

Hemodynamics
Automated Retinal Vein Cannulation on Silicone Phantoms Using Optical-Coherence-Tomography-Guided Robotic Manipulations. *Gerber, M.J.*, +, *TMECH Oct. 2021 2758-2769*
Histograms
Basic Input–Output Gain Tuning System Based on Control Input Histogram Leveling for Human-Operated Machines. *Kamezaki, M.*, +, *TMECH Dec. 2021 2857-2869*
Human computer interaction
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Optimized Interaction Control for Robot Manipulator Interacting With Flexible Environment. *Liu, X.*, +, *TMECH Dec. 2021 2888-2898*
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Human-in-the-Loop Control of a Wearable Lower Limb Exoskeleton for Stable Dynamic Walking. *Li, Z.*, +, *TMECH Oct. 2021 2700-2711*
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Phase-Relaxed-Passive Full State Feedback Gain Limits for Series Elastic Actuators. *Thomas, G.C.*, +, *TMECH Feb. 2021 586-591*
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Failure Monitoring and Predictive Maintenance of Hydraulic Cylinder—State-of-the-Art Review. *Shanbhag, V.V.*, +, *TMECH Dec. 2021 3087-3103*
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Hydrodynamics
Biomimetic Realization of a Robotic Penguin Wing: Design and Thrust Characteristics. *Shen, Y.*, +, *TMECH Oct. 2021 2350-2361*
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Hyperthermia
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IEEE transactions
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Adaptive Robust Finite-Time Nonlinear Control of a Typical Autonomous Underwater Vehicle With Saturated Inputs and Uncertainties. *Sedghi, F.*, +, *TMECH Oct. 2021 2517-2527*

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Distributed Control Algorithm for Leader–Follower Formation Tracking of Multiple Quadrotors: Theory and Experiment. *Wang, Z.*, +, *TMECH April 2021 1095-1105*

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Investigation of Micromotion Kinematics of Continuum Robots for Volumetric OCT and OCT-Guided Visual Servoing. *Giudice, G.D.*, +, *TMECH Oct. 2021 2604-2615*

Locomotion Analysis of a Clamper-Based Capsule Robot in a Compliant Tube. *Gao, J.*, +, *TMECH Feb. 2021 55-65*

Low Impedance-Guaranteed Gain-Scheduled GESO for Torque-Controlled VSA With Application of Exoskeleton-Assisted Sit-to-Stand. *Liu, L.*, +, *TMECH Aug. 2021 2080-2091*

Markovian Robust Filtering and Control Applied to Rehabilitation Robotics. *Escalante, F.M.*, +, *TMECH Feb. 2021 491-502*

Measurement of Peristaltic Forces Exerted by Living Intestine on Robotic Capsule. *Rehan, M.*, +, *TMECH Aug. 2021 1803-1811*

Mech-Walker:A Novel Single-DOF Linkage Device With Movable Frame for Gait Rehabilitation. *Haghjoo, M.R.*, +, *TMECH Feb. 2021 13-23*

Mechanical Aspects of Robot Hands, Active Hand Orthoses, and Prostheses: A Comparative Review. *Vertongen, J.*, +, *TMECH April 2021 955-965*

Mechanism and Controller Design of a Transfemoral Prosthesis With Electrohydraulic Knee and Motor-Driven Ankle. *Gao, S.*, +, *TMECH Oct. 2021 2429-2439*

Needle Deflection Modeling and Preoperative Trajectory Planning During Insertion Into Multilayered Tissues. *Zhao, B.*, +, *TMECH April 2021 943-954*

Robotized Catheter With Enhanced Distal Targeting for Peripheral Pulmonary Biopsy. *Kato, T.*, +, *TMECH Oct. 2021 2451-2461*

Stochastic Force-Based Insertion Depth and Tip Position Estimations of Flexible FBG-Equipped Instruments in Robotic Retinal Surgery. *Ebrahimi, A.*, +, *TMECH June 2021 1512-1523*

The MUSHA Hand II:A Multifunctional Hand for Robot-Assisted Laparoscopic Surgery. *Liu, H.*, +, *TMECH Feb. 2021 393-404*

Vision-Based Cutting Control of Deformable Objects With Surface Tracking. *Han, L.*, +, *TMECH Aug. 2021 2016-2026*

Wearable Knee Assistive Devices for Kneeling Tasks in Construction. *Chen, S.*, +, *TMECH Aug. 2021 1989-1996*

Medical signal processing

An Electrical Impedance Tomography Based Interface for Human–Robot Collaboration. *Zheng, E.*, +, *TMECH Oct. 2021 2373-2384*

Brain–Machine Interface Using Functional Electrical Stimulation and Motion-Related Cortical Potentials Identified by a Support Vector Machine. *Miura, S.*, +, *TMECH April 2021 1013-1021*

On-Body RF Sensor Toward Tremor Detection in Parkinson's Disease. *Abirami B, S.*, +, *TMECH Oct. 2021 2814-2817*

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Weakly Supervised Acoustic Defect Detection in Concrete Structures Using Clustering-Based Augmentation. *Kasahara, J.Y.L.*, +, *TMECH Dec. 2021 2826-2834*

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Localized Property Design and Gradient Processing of a Hydraulic Valve Body Using Selective Laser Melting. *Zhu, Y.*, +, *TMECH April 2021 1151-1160*

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Modeling and Analysis of Soft Pneumatic Network Bending Actuators. *Liu, Z.*, +, *TMECH Aug. 2021 2195-2203*

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A Delaunay Triangulation-Based Matching Area Selection Algorithm for Underwater Gravity-Aided Inertial Navigation. *Wang, C.*, +, *TMECH April 2021 908-917*

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Amaran:An Unmanned Robotic Coconut Tree Climber and Harvester. *Megalingam, R.K.*, +, *TMECH Feb. 2021 288-299*
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Blindly Controlled Magnetically Actuated Capsule for Noninvasive Sampling of the Gastrointestinal Microbiome. *Shokrollahi, P.*, +, *TMECH Oct. 2021 2616-2628*
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Development and Performance Enhancement of an Overactuated Autonomous Ground Vehicle. *Huang, Y.*, +, *TMECH Feb. 2021 33-44*
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Distributed Formation Control Using Fuzzy Self-Tuning of Strictly Negative Imaginary Consensus Controllers in Aerial Robotics. *Tran, V.P.*, +, *TMECH Oct. 2021 2306-2315*
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Efficient Cooperative Structured Control for a Multijoint Biomimetic Robotic Fish. *Yan, S.*, +, *TMECH Oct. 2021 2506-2516*
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Façade Cleaning Robot With Manipulating and Sensing Devices Equipped on a Gondola. *Chae, H.*, +, *TMECH Aug. 2021 1719-1727*
Formation Reconstruction and Trajectory Replanning for Multi-UAV Patrol. *Wang, Y.*, +, *TMECH April 2021 719-729*
Fully Actuated Autonomous Flight of Thruster-Tilting Multirotor. *Lee, S.J.*, +, *TMECH April 2021 765-776*
Fully Distributed Cooperative Circumnavigation of Networked Unmanned Aerial Vehicles. *Li, D.*, +, *TMECH April 2021 709-718*
Human-in-the-Loop Control of a Wearable Lower Limb Exoskeleton for Stable Dynamic Walking. *Li, Z.*, +, *TMECH Oct. 2021 2700-2711*
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Loop-Closure Detection With a Multiresolution Point Cloud Histogram Mode in Lidar Odometry and Mapping for Intelligent Vehicles. *Meng, Q.*, +, *TMECH June 2021 1307-1317*
MEMS-Enabled Retrofitting of Automobile Wheel Balancer for Automatic Unbalance Detection. *Pozzato, G.*, +, *TMECH April 2021 830-840*
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Multiobjective Scheduling Strategy With Genetic Algorithm and Time-Enhanced A* Planning for Autonomous Parking Robotics in High-Density Unmanned Parking Lots. *Chen, G.*, +, *TMECH June 2021 1547-1557*
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Point Stabilization of Nonholonomic Mobile Robot by Bézier Smooth Subline Constraint Nonlinear Model Predictive Control. *Zhang, Y.*, +, *TMECH April 2021 990-1001*
Proportional-Integral Approximation-Free Control of Robotic Systems With Unknown Dynamics. *Zhang, C.*, +, *TMECH Aug. 2021 2226-2236*
Real-Time Avoidance Strategy of Dynamic Obstacles via Half Model-Free Detection and Tracking With 2D Lidar for Mobile Robots. *Dong, H.*, +, *TMECH Aug. 2021 2215-2225*
Robust Concurrent Design of a 2-DOF Collaborative Robot (Cobot). *Mendoza-Trejo, O.*, +, *TMECH Feb. 2021 347-357*
Self-Balancing Two-Wheeled Robot Featuring Intelligent End-to-End Deep Visual-Steering. *Li, C.G.*, +, *TMECH Oct. 2021 2263-2273*
Sliding-Mode-Disturbance-Observer-Based Robust Tracking Control for Omnidirectional Mobile Robots With Kinematic and Dynamic Uncertainties. *Jeong, S.*, +, *TMECH April 2021 741-752*
Swing-Reducing Flight Control System for an Underactuated Indoor Miniature Autonomous Blimp. *Tao, Q.*, +, *TMECH Aug. 2021 1895-1904*
Takagi–Sugeno Fuzzy-Based Robust $H\infty$ Integrated Lane-Keeping and Direct Yaw Moment Controller of Unmanned Electric Vehicles. *Guo, J.*, +, *TMECH Aug. 2021 2151-2162*
Topology Optimization of Skeleton-Reinforced Soft Pneumatic Actuators for Desired Motions. *Chen, S.*, +, *TMECH Aug. 2021 1745-1753*
Toward Safe and Personalized Autonomous Driving: Decision-Making and Motion Control With DPF and CDT Techniques. *Huang, C.*, +, *TMECH April 2021 611-620*
Vibration Reduction of Flexible Rope-Driven Mobile Robot for Safe Façade Operation. *Seo, M.*, +, *TMECH Aug. 2021 1812-1819*
Virtual Landmark-Based Control of Docking Support for Assistive Mobility Devices. *Chen, Y.*, +, *TMECH Aug. 2021 2007-2015*
Whole-Body Control of an Autonomous Mobile Manipulator Using Series Elastic Actuators. *Liu, Y.*, +, *TMECH April 2021 657-667*

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Loop-Closure Detection With a Multiresolution Point Cloud Histogram Mode in Lidar Odometry and Mapping for Intelligent Vehicles. *Meng, Q.*, +, *TMECH June 2021 1307-1317*

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Characterization of a Packaged Triboelectric Harvester Under Simulated Gait Loading for Total Knee Replacement. *Hossain, N.A.*, +, *TMECH Dec. 2021 2967-2976*
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Coordinated Dynamic Control in the Task Space for Redundantly Actuated Cable-Driven Parallel Robots. *Zhang, B.*, +, *TMECH Oct. 2021 2396-2407*

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Design and Characterization of a Bellows-Driven Soft Pneumatic Actuator. *Hashem, R.*, +, *TMECH Oct. 2021 2327-2338*
Dual Fast Marching Tree Algorithm for Human-Like Motion Planning of Anthropomorphic Arms With Task Constraints. *Xia, J.*, +, *TMECH Oct. 2021 2803-2813*

Modified Stiffness-Based Soft Optical Waveguide Integrated Pneumatic Artificial Muscle (PAM) Actuators for Contraction and Force Sensing. *Jamil, B.*, +, *TMECH Dec. 2021 3243-3253*

Wearable Knee Assistive Devices for Kneeling Tasks in Construction. *Chen, S.*, +, *TMECH Aug. 2021 1989-1996*

N

NAND circuits

A Lightweight Wireless Overpressure Node Based Efficient Monitoring for Shock Waves. *Gao, S.*, +, *TMECH Feb. 2021 448-457*

Nanomagnetics

Optimal Design and Implementation of a Novel Two-Dimensional Electromagnetic Navigation System That Allows Focused Heating of Magnetic Nanoparticles. *Le, T.*, +, *TMECH Feb. 2021 551-562*

Nanomedicine

Optimal Design and Implementation of a Novel Two-Dimensional Electromagnetic Navigation System That Allows Focused Heating of Magnetic Nanoparticles. *Le, T.*, +, *TMECH Feb. 2021 551-562*

Nanoparticles

Optimal Design and Implementation of a Novel Two-Dimensional Electromagnetic Navigation System That Allows Focused Heating of Magnetic Nanoparticles. *Le, T.*, +, *TMECH Feb. 2021 551-562*

Nanopositioning

A Smoothed Raster Scanning Trajectory Based on Acceleration-Continuous B-Spline Transition for High-Speed Atomic Force Microscopy. *Li, L.*, +, *TMECH Feb. 2021 24-32*

Closed-Loop Range-Based Control of Dual-Stage Nanopositioning Systems. *Mitrovic, A.*, +, *TMECH June 2021 1412-1421*

Development of a Nanopositioning Platform With Large Travel Range Based on Bionic Quadruped Piezoelectric Actuator. *Deng, J.*, +, *TMECH Aug. 2021 2059-2070*

Iterative Learning Control for Video-Rate Atomic Force Microscopy. *Nikooienejad, N.*, +, *TMECH Aug. 2021 2127-2138*

Time/Space-Separation-Based Gaussian Process Modeling for the Cross-Coupling Effect of a 2-DOF Nanopositioning Stage. *Tao, Y.*, +, *TMECH Aug. 2021 2186-2194*

Nanotechnology

Time/Space-Separation-Based Gaussian Process Modeling for the Cross-Coupling Effect of a 2-DOF Nanopositioning Stage. *Tao, Y.*, +, *TMECH Aug. 2021 2186-2194*

Navigation

Autonomous Navigation of Magnetic Microrobots in a Large Workspace Using Mobile-Coil System. *Yang, Z.*, +, *TMECH Dec. 2021 3163-3174*

Robot-Assisted Object Detection for Construction Automation: Data and Information-Driven Approach. *Muhammad, I.*, +, *TMECH Dec. 2021 2845-2856*

Nearest neighbor methods

Global Optimization of the Hydraulic-Electromagnetic Energy-Harvesting Shock Absorber for Road Vehicles With Human-Knowledge-Integrated Particle Swarm Optimization Scheme. *Zhou, Q.*, +, *TMECH June 2021 1225-1235*

Neck

Investigation on a New Approach for Designing Articulated Soft Robots With Discrete Variable Stiffness. *Zhong, Y.*, +, *TMECH Dec. 2021 2998-3009*

Needles

A Fully Actuated Robotic Assistant for MRI-Guided Precision Conformal Ablation of Brain Tumors. *Li, G.*, +, *TMECH Feb. 2021 255-266*

A Mechanism-Image Fusion Approach to Calibration of an Ultrasound-Guided Dual-Arm Robotic Brachytherapy System. *Xiong, J.*, +, *TMECH Dec. 2021 3211-3220*

A Tubular Dual-Roller Bending Mechanism Toward Robotic Transurethral Prostate Biopsy. *Xiao, X.*, +, *TMECH Oct. 2021 2483-2494*

Investigation of Micromotion Kinematics of Continuum Robots for Volumetric OCT and OCT-Guided Visual Servoing. *Giudice, G.D.*, +, *TMECH Oct. 2021 2604-2615*

Needle Deflection Modeling and Preoperative Trajectory Planning During Insertion Into Multilayered Tissues. *Zhao, B.*, +, *TMECH April 2021 943-954*

Stochastic Force-Based Insertion Depth and Tip Position Estimations of Flexible FBG-Equipped Instruments in Robotic Retinal Surgery. *Ebrahimi, A.*, +, *TMECH June 2021 1512-1523*

Networked control systems

Cyber–Physical Codesign of Field-Level Reconfigurations in Networked Motion Controllers. *Zhou, N.*, +, *TMECH Aug. 2021 2092-2103*

Neural networks

Edge-Dependent Efficient Grasp Rectangle Search in Robotic Grasp Detection. *Chen, L.*, +, *TMECH Dec. 2021 2922-2931*

Neural networks

A Circadian Rhythms Neural Network for Solving the Redundant Robot Manipulators Tracking Problem Perturbed by Periodic Noise. *Zhang, Z.*, +, *TMECH Dec. 2021 3232-3242*

An Integrated Terrain Identification Framework for Mobile Robots: System Development, Analysis, and Verification. *Zeng, R.*, +, *TMECH June 2021 1581-1590*

An Investigation Into Fault Diagnosis of Planetary Gearboxes Using A Bispectrum Convolutional Neural Network. *Pang, X.*, +, *TMECH Aug. 2021 2027-2037*

Geometrical-Based Displacement Measurement With Pseudostereo Monocular Camera on Bidirectional Cascaded Linear Actuator. *Lee, D.*, +, *TMECH Aug. 2021 1923-1931*

Interactive Behavior Prediction for Heterogeneous Traffic Participants in the Urban Road: A Graph-Neural-Network-Based Multitask Learning Framework. *Li, Z.*, +, *TMECH June 2021 1339-1349*

Sensing and Reconstruction of 3-D Deformation on Pneumatic Soft Robots. *Scharff, R.B.N.*, +, *TMECH Aug. 2021 1877-1885*

Unmanned System Safety Decision-Making Support: Analysis and Assessment of Road Traffic Accidents. *Xie, G.*, +, *TMECH April 2021 633-644*

Neurocontrollers

A Visual Servo-Based Predictive Control With Echo State Gaussian Process for Soft Bending Actuator. *Cao, Y.*, +, *TMECH Feb. 2021 574-585*

An Observer-Based Neural AdaptivePID^2 Controller for Robot Manipulators Including Motor Dynamics With a Prescribed Performance. *Shojaei, K.*, +, *TMECH June 2021 1689-1699*

Efficient Cooperative Structured Control for a Multijoint Biomimetic Robotic Fish. *Yan, S.*, +, *TMECH Oct. 2021 2506-2516*

Event-Triggered-Based Discrete-Time Neural Control for a Quadrotor UAV Using Disturbance Observer. *Shao, S.*, +, *TMECH April 2021 689-699*

Fractional-Order Control for Uncertain Teleoperated Cyber-Physical System With Actuator Fault. *Ma, Z.*, +, *TMECH Oct. 2021 2472-2482*

Model-Free Control of Flexible Manipulator Based on Intrinsic Design. *Jiang, N.*, +, *TMECH Oct. 2021 2641-2652*

Neurodynamics-Based Model Predictive Control of Continuous-Time Under-Actuated Mechatronic Systems. *Wang, J.*, +, *TMECH Feb. 2021 311-322*

Novel Joint-Drift-Free Scheme at Acceleration Level for Robotic Redundancy Resolution With Tracking Error Theoretically Eliminated. *Jin, L.*, +, *TMECH Feb. 2021 90-101*

Terrain Identification for Humanoid Robots Applying Convolutional Neural Networks. *Venancio, M.M.*, +, *TMECH June 2021 1433-1444*

Whole-Body Control of an Autonomous Mobile Manipulator Using Series Elastic Actuators. *Liu, Y.*, +, *TMECH April 2021 657-667*

Neuromuscular

MPC-Based Haptic Shared Steering System: A Driver Modeling Approach for Symbiotic Driving. *Lazcano, A.M.*, +, *TMECH June 2021 1201-1211*

Neuromuscular stimulation

Brain–Machine Interface Using Functional Electrical Stimulation and Motion-Related Cortical Potentials Identified by a Support Vector Machine. *Miura, S.*, +, *TMECH April 2021 1013-1021*

Neurophysiology

A Suction-Based Peripheral Nerve Gripper Capable of Controlling the Suction Force. *Jang, N.*, +, *TMECH Aug. 2021 1867-1876*

Brain–Machine Interface Using Functional Electrical Stimulation and Motion-Related Cortical Potentials Identified by a Support Vector Machine. *Miura, S.*, +, *TMECH April 2021 1013-1021*

On-Body RF Sensor Toward Tremor Detection in Parkinson's Disease. *Abirami B, S.*, +, *TMECH Oct. 2021 2814-2817*

Newton method

A Lie-Theory-Based Dynamic Parameter Identification Methodology for Serial Manipulators. *Fu, Z.*, +, *TMECH Oct. 2021 2688-2699*

Noise measurement

A Circadian Rhythms Neural Network for Solving the Redundant Robot Manipulators Tracking Problem Perturbed by Periodic Noise. *Zhang, Z.*, +, *TMECH Dec. 2021 3232-3242*

Nonlinear control systems

A Tilting-Rotor Unmanned Aerial Vehicle for Enhanced Aerial Locomotion and Manipulation Capabilities: Design, Control, and Applications. *Ding, C.*, +, *TMECH Aug. 2021 2237-2248*

A Visual Servo-Based Predictive Control With Echo State Gaussian Process for Soft Bending Actuator. *Cao, Y.*, +, *TMECH Feb. 2021 574-585*

Active Disturbance Rejection Control for a Fluid-Driven Hand Rehabilitation Device. *Li, H.*, +, *TMECH April 2021 841-853*

Adaptive Output Feedback Control of Steer-by-Wire Systems With Event-Triggered Communication. *Ma, B.*, +, *TMECH Aug. 2021 1968-1979*

Adaptive Robust Finite-Time Nonlinear Control of a Typical Autonomous Underwater Vehicle With Saturated Inputs and Uncertainties. *Sedghi, F.*, +, *TMECH Oct. 2021 2517-2527*

Analytical Design and Experimental Verification of Geofencing Control for Aerial Applications. *Ghaffari, A., TMECH April 2021 1106-1117*

Asymptotic Tracking Control of Mechanical Servosystems With Mismatched Uncertainties. *Deng, W.*, +, *TMECH Aug. 2021 2204-2214*

Computationally Improved State-Dependent Riccati Equation Scheme for Nonlinear Benchmark System. *Lin, L., TMECH April 2021 1064-1075*

Design and Experimental Validation of Robust Self-Scheduled Fault-Tolerant Control Laws for a Multicopter UAV. *Nguyen, D.*, +, *TMECH Oct. 2021 2548-2557*

Distributed Control Algorithm for Leader–Follower Formation Tracking of Multiple Quadrotors: Theory and Experiment. *Wang, Z.*, +, *TMECH April 2021 1095-1105*

Distributed Formation Control Using Fuzzy Self-Tuning of Strictly Negative Imaginary Consensus Controllers in Aerial Robotics. *Tran, V.P.*, +, *TMECH Oct. 2021 2306-2315*

Dynamic Torso Compliance Control for Standing and Walking Balance of Position-Controlled Humanoid Robots. *Li, Q.*, +, *TMECH April 2021 679-688*

Event-Triggered-Based Discrete-Time Neural Control for a Quadrotor UAV Using Disturbance Observer. *Shao, S.*, +, *TMECH April 2021 689-699*

Experimental Investigation on Control of an Infinitely Variable Transmission System for Tidal Current Energy Converters. *Li, G.*, +, *TMECH Aug. 2021 1960-1967*

Finite-Time Synchronization Control for Bilateral Teleoperation Systems With Asymmetric Time-Varying Delay and Input Dead Zone. *Bao, J.*, +, *TMECH June 2021 1570-1580*

Fractional-Order Control for Uncertain Teleoperated Cyber-Physical System With Actuator Fault. *Ma, Z.*, +, *TMECH Oct. 2021 2472-2482*

Fully Actuated Autonomous Flight of Thruster-Tilting Multirotor. *Lee, S.J.*, +, *TMECH April 2021 765-776*

Hybrid Control Strategy for Force and Precise End Effector Positioning of a Twisted String Actuator. *Rodriguez, A.S.*, +, *TMECH Oct. 2021 2791-2802*

Kernel-Orthogonal Control of Tensegrity Systems. *Yang, S., TMECH April 2021 1043-1052*

Modeling and Adaptive Fault Compensation for Two Physically Linked 2WD Mobile Robots. *Ma, Y.*, +, *TMECH April 2021 1161-1171*

Modeling and Motion Control of Industrial Tractor–Trailers Vehicles Using Force Compensation. *Zhao, H.*, +, *TMECH April 2021 645-656*

Nonlinear Model Predictive Control for Integrated Energy-Efficient Torque-Vectoring and Anti-Roll Moment Distribution. *Dalboni, M.*, +, *TMECH June 2021 1212-1224*

On Perpendicular Curve-Based Model-Less Control Considering Incomplete Orientation Constraint. *Li, G.*, +, *TMECH June 2021 1479-1489*

Passivity-Based Nonlinear Control Approach for Tracking Task of an Underactuated CMG. *Toriumi, F.Y.*, +, *TMECH Oct. 2021 2285-2293*

Path Following of Wheeled Mobile Robots Using Online-Optimization-Based Guidance Vector Field. *Chen, J.*, +, *TMECH Aug. 2021 1737-1744*

Point Stabilization of Nonholonomic Mobile Robot by Bézier Smooth Subline Constraint Nonlinear Model Predictive Control. *Zhang, Y.*, +, *TMECH April 2021 990-1001*

Practical Terminal Sliding Mode Control of Nonlinear Uncertain Active Suspension Systems With Adaptive Disturbance Observer. *Wang, G.*, +, *TMECH April 2021 789-797*

Proportional-Integral Approximation-Free Control of Robotic Systems With Unknown Dynamics. *Zhang, C.*, +, *TMECH Aug. 2021 2226-2236*

Quasi-LPV Interconnected Observer Design for Full Vehicle Dynamics Estimation With Hardware Experiments. *Fouka, M.*, +, *TMECH Aug. 2021 1763-1772*

Quasi-Synchronization Control of Multiple Electrohydraulic Actuators With Load Disturbance and Uncertain Parameters. *Guo, Q.*, +, *TMECH Aug. 2021 2048-2058*

Robust Adaptive Tracking Control of Underwater Vehicles: Design, Stability Analysis, and Experiments. *Tijjani, A.S.*, +, *TMECH April 2021 897-907*

Robust Nonlinear Model Predictive Control Based Visual Servoing of Quadrotor UAVs. *Zhang, K.*, +, *TMECH April 2021 700-708*

Robust Tracking Control of a Quadrotor Unmanned Aerial Vehicle-Suspended Payload System. *Xian, B.*, +, *TMECH Oct. 2021 2653-2663*

Sliding-Mode-Disturbance-Observer-Based Robust Tracking Control for Omnidirectional Mobile Robots With Kinematic and Dynamic Uncertainties. *Jeong, S.*, +, *TMECH April 2021 741-752*

Takagi–Sugeno Fuzzy Unknown Input Observers to Estimate Nonlinear Dynamics of Autonomous Ground Vehicles: Theory and Real-Time Verification. *Nguyen, A.*, +, *TMECH June 2021 1328-1338*

Tracking Accuracy Improvement Based on Adaptive Nonlinear Sliding Mode Control. *Tsai, W.*, +, *TMECH Feb. 2021 179-190*

Virtual Landmark-Based Control of Docking Support for Assistive Mobility Devices. *Chen, Y.*, +, *TMECH Aug. 2021 2007-2015*

Whole-Body Control of an Autonomous Mobile Manipulator Using Series Elastic Actuators. *Liu, Y.*, +, *TMECH April 2021 657-667*

Nonlinear differential equations

Actuation Frequency Modeling and Prediction for Shape Memory Alloy Actuators. *Liu, X.*, +, *TMECH June 2021 1536-1546*

Static Pull-In Behavior of Hybrid Levitation Microactuators: Simulation, Modeling, and Experimental Study. *Poletkin, K.V., TMECH April 2021 753-764*

Nonlinear equations

Dynamic Modeling and State Estimation of Cable-Conduit Actuation During Interaction With Nonpassive Environments. *Buchanan, S.*, +, *TMECH Oct. 2021 2462-2471*

Nonlinear filters

An Adaptive Fault-Tolerant EKF for Vehicle State Estimation With Partial Missing Measurements. *Wang, Y.*, +, *TMECH June 2021 1318-1327*

Numerical models

Automatic Construction of Three-Dimensional Ground Model by Data Processing. *Takeyama, T.*, +, *TMECH Dec. 2021 2881-2887*

Energy-Based Modeling of Ionic Polymer–Metal Composite Actuators Dedicated to the Control of Flexible Structures. *Liu, N.*, +, *TMECH Dec. 2021 3139-3150*

Prediction-Model-Based Contouring Error Iterative Precompensation Scheme for Precision Multiaxis Motion Systems. *Wang, Z.*, +, *TMECH Oct. 2021 2274-2284*

Numerical stability

Computationally Efficient Practical Method for Solving the Dynamics of Fluid Power Circuits in the Presence of Singularities. *Malysheva, J.*, +, *TMECH Oct. 2021 2385-2395*

O

Object detection

Autonomous Vision-Guided Object Collection From Water Surfaces With a Customized Multirotor. *Mishra, S.*, +, *TMECH Aug. 2021 1914-1922*

Efficient Anomaly Detection in a Laser-Surface Heat-Treatment Process via Laser-Spot Tracking. *Atienza, D.*, +, *TMECH Feb. 2021 405-415*

Loop-Closure Detection With a Multiresolution Point Cloud Histogram Mode in Lidar Odometry and Mapping for Intelligent Vehicles. *Meng, Q.*, +, *TMECH June 2021 1307-1317*

Modeling and Experimental Validation of a Planar Microconveyor Based on a 2 × 2 Array of Digital Electromagnetic Actuators. *Tisnes, S.D.*, +, *TMECH June 2021 1422-1432*

Real-Time Avoidance Strategy of Dynamic Obstacles via Half Model-Free Detection and Tracking With 2D Lidar for Mobile Robots. *Dong, H.*, +, *TMECH Aug. 2021 2215-2225*

Robot-Assisted Object Detection for Construction Automation: Data and Information-Driven Approach. *Muhammad, I.*, +, *TMECH Dec. 2021 2845-2856*

Object recognition

OrthographicNet: A Deep Transfer Learning Approach for 3-D Object Recognition in Open-Ended Domains. *Kasaei, S.H., TMECH Dec. 2021 2910-2921*

Object tracking

On-Body RF Sensor Toward Tremor Detection in Parkinson's Disease. *Abirami B, S.*, +, *TMECH Oct. 2021 2814-2817*

Virtual Landmark-Based Control of Docking Support for Assistive Mobility Devices. *Chen, Y.*, +, *TMECH Aug. 2021 2007-2015*

Observability

Quasi-LPV Interconnected Observer Design for Full Vehicle Dynamics Estimation With Hardware Experiments. *Fouka, M.*, +, *TMECH Aug. 2021 1763-1772*

Observers

A Computational-Effective Field-Oriented Control Strategy for Accurate and Efficient Electric Propulsion of Unmanned Aerial Vehicles. *Bosso, A.*, +, *TMECH June 2021 1501-1511*

A Generalized Design Method for Learning-Based Disturbance Observer. *Zheng, M.*, +, *TMECH Feb. 2021 45-54*

A Novel Rotational Actuator With Variable Stiffness Using S-Shaped Springs. *Xu, Y.*, +, *TMECH Aug. 2021 2249-2260*

Active Disturbance Rejection Control for a Fluid-Driven Hand Rehabilitation Device. *Li, H.*, +, *TMECH April 2021 841-853*

Adaptive Output Feedback Control of Steer-by-Wire Systems With Event-Triggered Communication. *Ma, B.*, +, *TMECH Aug. 2021 1968-1979*

An Observer-Based Neural AdaptivePID^2 Controller for Robot Manipulators Including Motor Dynamics With a Prescribed Performance. *Shojaei, K.*, +, *TMECH June 2021 1689-1699*

An Output Feedback Based Robust Saturated Controller Design for Pavement Sweeping Self-Reconfigurable Robot. *Rayguru, M.M.*, +, *TMECH June 2021 1236-1247*

Dimensionless Model-Based System Tracking Via Augmented Kalman Filter for Multiscale Unmanned Ground Vehicles. *Sun, C.*, +, *TMECH April 2021 600-610*

Event-Triggered-Based Discrete-Time Neural Control for a Quadrotor UAV Using Disturbance Observer. *Shao, S.*, +, *TMECH April 2021 689-699*

Low Impedance-Guaranteed Gain-Scheduled GESO for Torque-Controlled VSA With Application of Exoskeleton-Assisted Sit-to-Stand. *Liu, L.*, +, *TMECH Aug. 2021 2080-2091*

Practical Terminal Sliding Mode Control of Nonlinear Uncertain Active Suspension Systems With Adaptive Disturbance Observer. *Wang, G.*, +, *TMECH April 2021 789-797*

Quasi-LPV Interconnected Observer Design for Full Vehicle Dynamics Estimation With Hardware Experiments. *Fouka, M.*, +, *TMECH Aug. 2021 1763-1772*

Simultaneous State Estimation and Tire Model Learning for Autonomous Vehicle Applications. *Jeon, W.*, +, *TMECH Aug. 2021 1941-1950*

Sliding-Mode-Disturbance-Observer-Based Robust Tracking Control for Omnidirectional Mobile Robots With Kinematic and Dynamic Uncertainties. *Jeong, S.*, +, *TMECH April 2021 741-752*

Stability and Robustness of the Disturbance Observer-Based Motion Control Systems in Discrete-Time Domain. *Sariyildiz, E.*, +, *TMECH Aug. 2021 2139-2150*

Takagi–Sugeno Fuzzy Unknown Input Observers to Estimate Nonlinear Dynamics of Autonomous Ground Vehicles: Theory and Real-Time Verification. *Nguyen, A.*, +, *TMECH June 2021 1328-1338*

Oils

Failure Monitoring and Predictive Maintenance of Hydraulic Cylinder—State-of-the-Art Review. *Shanbhag, V.V.*, +, *TMECH Dec. 2021 3087-3103*

Open loop systems

Modeling and Experimental Validation of a Planar Microconveyor Based on a 2 × 2 Array of Digital Electromagnetic Actuators. *Tisnes, S.D.*, +, *TMECH June 2021 1422-1432*

Optical arrays

Ultraviolet Beam Lithography System for Digital Fabrication of Roller Molds. *Yang, S.*, +, *TMECH Feb. 2021 226-234*

Optical design techniques

Exploring the Pareto Fronts of Actuation Technologies for High Performance Mechatronic Systems. *Csencsics, E.*, +, *TMECH April 2021 1053-1063*

Optical fabrication

Ultraviolet Beam Lithography System for Digital Fabrication of Roller Molds. *Yang, S.*, +, *TMECH Feb. 2021 226-234*

Optical feedback

Modified Stiffness-Based Soft Optical Waveguide Integrated Pneumatic Artificial Muscle (PAM) Actuators for Contraction and Force Sensing. *Jamil, B.*, +, *TMECH Dec. 2021 3243-3253*

Optical fibers

Ultraviolet Beam Lithography System for Digital Fabrication of Roller Molds. *Yang, S.*, +, *TMECH Feb. 2021 226-234*

Optical imaging

Radial Coverage Strength for Optimization of Monocular Multicamera Deployment. *Lei, Z.*, +, *TMECH Dec. 2021 3221-3231*

Optical microscopy

Image Processing Metrics for Phase Identification of a Multiaxis MEMS Scanner Used in Single Pixel Imaging. *Birla, M.*, +, *TMECH June 2021 1445-1454*

Optical modulation

Ultraviolet Beam Lithography System for Digital Fabrication of Roller Molds. *Yang, S.*, +, *TMECH Feb. 2021 226-234*

Optical noise

UltraLow Noise, High Bandwidth, Low Latency, No Overload 6-Axis Optical Force Sensor. *Hosseinabadi, A.H.H.*, +, *TMECH Oct. 2021 2581-2592*

Optical radar

Loop-Closure Detection With a Multiresolution Point Cloud Histogram Mode in Lidar Odometry and Mapping for Intelligent Vehicles. *Meng, Q.*, +, *TMECH June 2021 1307-1317*

Real-Time Avoidance Strategy of Dynamic Obstacles via Half Model-Free Detection and Tracking With 2D Lidar for Mobile Robots. *Dong, H.*, +, *TMECH Aug. 2021 2215-2225*

Optical scanners

Development of a Resonant Scanner to Improve the Imaging Rate of Astigmatic Optical Profilometers. *Liao, H.*, +, *TMECH April 2021 1172-1177*

Image Processing Metrics for Phase Identification of a Multiaxis MEMS Scanner Used in Single Pixel Imaging. *Birla, M.*, +, *TMECH June 2021 1445-1454*

Optical sensors

An Automated AFM Tip-Replacement System for *In Situ* Tip-Replacement. *Vikrant, K.S.*, +, *TMECH April 2021 798-806*

Modified Stiffness-Based Soft Optical Waveguide Integrated Pneumatic Artificial Muscle (PAM) Actuators for Contraction and Force Sensing. *Jamil, B.*, +, *TMECH Dec. 2021 3243-3253*

UltraLow Noise, High Bandwidth, Low Latency, No Overload 6-Axis Optical Force Sensor. *Hosseinabadi, A.H.H.*, +, *TMECH Oct. 2021 2581-2592*

Optical tomography
Automated Retinal Vein Cannulation on Silicone Phantoms Using Optical-Coherence-Tomography-Guided Robotic Manipulations. *Gerber, M.J.*, +, *TMECH Oct. 2021 2758-2769*
Investigation of Micromotion Kinematics of Continuum Robots for Volumetric OCT and OCT-Guided Visual Servoing. *Giudice, G.D.*, +, *TMECH Oct. 2021 2604-2615*
Optimal control
Efficient Motion Planning Based on Kinodynamic Model for Quadruped Robots Following Persons in Confined Spaces. *Zhang, Z.*, +, *TMECH Aug. 2021 1997-2006*
Fractional-Order Control for Uncertain Teleoperated Cyber-Physical System With Actuator Fault. *Ma, Z.*, +, *TMECH Oct. 2021 2472-2482*
Robust Concurrent Design of a 2-DOF Collaborative Robot (Cobot). *Mendoza-Trejo, O.*, +, *TMECH Feb. 2021 347-357*
Optimization
A Novel Clustering-Based Algorithm for Solving Spatially Constrained Robotic Task Sequencing Problems. *Wong, C.*, +, *TMECH Oct. 2021 2294-2305*
An Electrical Impedance Tomography Based Interface for Human–Robot Collaboration. *Zheng, E.*, +, *TMECH Oct. 2021 2373-2384*
Constrained Surrogate-Based Engine Calibration Using Lower Confidence Bound. *Pal, A.*, +, *TMECH Dec. 2021 3116-3127*
Efficiency Optimization Strategy for Switched Reluctance Generator System With Position Sensorless Control. *Chen, H.*, +, *TMECH Feb. 2021 469-479*
Efficient Bathymetric SLAM With Invalid Loop Closure Identification. *Teng, M.*, +, *TMECH Oct. 2021 2570-2580*
Efficient Cooperative Structured Control for a Multijoint Biomimetic Robotic Fish. *Yan, S.*, +, *TMECH Oct. 2021 2506-2516*
Efficient Motion Planning Based on Kinodynamic Model for Quadruped Robots Following Persons in Confined Spaces. *Zhang, Z.*, +, *TMECH Aug. 2021 1997-2006*
Global Optimization of the Hydraulic-Electromagnetic Energy-Harvesting Shock Absorber for Road Vehicles With Human-Knowledge-Integrated Particle Swarm Optimization Scheme. *Zhou, Q.*, +, *TMECH June 2021 1225-1235*
Globally Optimal Symbolic Hand-Eye Calibration. *Wu, J.*, +, *TMECH June 2021 1369-1379*
Integral Design and Manufacturing Methodology of a Reduced-Scale Servo Press. *Olaizola, J.*, +, *TMECH Oct. 2021 2418-2428*
Localized Property Design and Gradient Processing of a Hydraulic Valve Body Using Selective Laser Melting. *Zhu, Y.*, +, *TMECH April 2021 1151-1160*
Neurodynamics-Based Model Predictive Control of Continuous-Time Under-Actuated Mechatronic Systems. *Wang, J.*, +, *TMECH Feb. 2021 311-322*
Nonprehensile Manipulation:A Trajectory-Planning Perspective. *Acharya, P.*, +, *TMECH Feb. 2021 527-538*
Novel Joint-Drift-Free Scheme at Acceleration Level for Robotic Redundancy Resolution With Tracking Error Theoretically Eliminated. *Jin, L.*, +, *TMECH Feb. 2021 90-101*
Optimization of Generalized S-Curve Trajectories for Residual Vibration Suppression and Compliance With Kinematic Bounds. *Biagiotti, L.*, +, *TMECH Oct. 2021 2724-2734*
Radial Coverage Strength for Optimization of Monocular Multicamera Deployment. *Lei, Z.*, +, *TMECH Dec. 2021 3221-3231*
Thermal Modeling and Characterization of Twisted Coiled Actuators for Upper Limb Wearable Devices. *Edmonds, B.P.R.*, +, *TMECH April 2021 966-977*
Topology Optimization for Design of a 3D-Printed Constant-Force Compliant Finger. *Liu, C.*, +, *TMECH Aug. 2021 1828-1836*
Topology Optimization of Skeleton-Reinforced Soft Pneumatic Actuators for Desired Motions. *Chen, S.*, +, *TMECH Aug. 2021 1745-1753*
Orthopedics
A Surgical Robotic System for Treatment of Pelvic Osteolysis Using an FBG-Equipped Continuum Manipulator and Flexible Instruments. *Sefati, S.*, +, *TMECH Feb. 2021 369-380*
Orthotics
Mech-Walker:A Novel Single-DOF Linkage Device With Movable Frame for Gait Rehabilitation. *Haghjoo, M.R.*, +, *TMECH Feb. 2021 13-23*
Mechanical Aspects of Robot Hands, Active Hand Orthoses, and Prostheses: A Comparative Review. *Vertongen, J.*, +, *TMECH April 2021 955-965*

P

Painting
Control Parameters Design Based on Dynamic Characteristics of a Hybrid Robot With Parallelogram Structures. *Liu, Z.*, +, *TMECH April 2021 1140-1150*
Pancreas
Development of a Soft Robot Based Photodynamic Therapy for Pancreatic Cancer. *Li, Y.*, +, *TMECH Dec. 2021 2977-2985*
Parallel processing
Toolpath Regeneration in Subregional Contour-Parallel Processing Based on Isoscallop Method. *Ma, J.*, +, *TMECH April 2021 730-740*
Parameter estimation
A Lie-Theory-Based Dynamic Parameter Identification Methodology for Serial Manipulators. *Fu, Z.*, +, *TMECH Oct. 2021 2688-2699*
Electrical Parameter Identification of Medium-Frequency DC Resistance Spot Welding System Using Intelligent Algorithm. *Wang, X.*, +, *TMECH Aug. 2021 1791-1802*
Identification of a Nonlinear Dielectric Elastomer Actuator Based on the Harmonic Balance Method. *Bernat, J.*, +, *TMECH Oct. 2021 2664-2675*
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Global Optimization of the Hydraulic-Electromagnetic Energy-Harvesting Shock Absorber for Road Vehicles With Human-Knowledge-Integrated Particle Swarm Optimization Scheme. *Zhou, Q.*, +, *TMECH June 2021 1225-1235*
Path planning
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Autonomous Navigation of Magnetic Microrobots in a Large Workspace Using Mobile-Coil System. *Yang, Z.*, +, *TMECH Dec. 2021 3163-3174*
Collaborative Semantic Understanding and Mapping Framework for Autonomous Systems. *Yue, Y.*, +, *TMECH April 2021 978-989*
Development and Performance Enhancement of an Overactuated Autonomous Ground Vehicle. *Huang, Y.*, +, *TMECH Feb. 2021 33-44*
Dual Fast Marching Tree Algorithm for Human-Like Motion Planning of Anthropomorphic Arms With Task Constraints. *Xia, J.*, +, *TMECH Oct. 2021 2803-2813*
Dynamic State Estimation and Control of a Heavy Tractor–Trailers Vehicle. *Zhou, S.*, +, *TMECH June 2021 1467-1478*
Efficient Bathymetric SLAM With Invalid Loop Closure Identification. *Teng, M.*, +, *TMECH Oct. 2021 2570-2580*
Integrated Predictive Powertrain Control for a Multimode Plug-in Hybrid Electric Vehicle. *Oncken, J.*, +, *TMECH June 2021 1248-1259*
Interactive Behavior Prediction for Heterogeneous Traffic Participants in the Urban Road: A Graph-Neural-Network-Based Multitask Learning Framework. *Li, Z.*, +, *TMECH June 2021 1339-1349*

Multiobjective Scheduling Strategy With Genetic Algorithm and Time-Enhanced A* Planning for Autonomous Parking Robotics in High-Density Unmanned Parking Lots. *Chen, G.*, +, *TMECH June 2021 1547-1557*
Nonprehensile Manipulation:A Trajectory-Planning Perspective. *Acharya, P.*, +, *TMECH Feb. 2021 527-538*
Self-Balancing Two-Wheeled Robot Featuring Intelligent End-to-End Deep Visual-Steering. *Li, C.G.*, +, *TMECH Oct. 2021 2263-2273*
Toward Safe and Personalized Autonomous Driving: Decision-Making and Motion Control With DPF and CDT Techniques. *Huang, C.*, +, *TMECH April 2021 611-620*
Virtual Landmark-Based Control of Docking Support for Assistive Mobility Devices. *Chen, Y.*, +, *TMECH Aug. 2021 2007-2015*

Patient monitoring
On-Body RF Sensor Toward Tremor Detection in Parkinson's Disease. *Abirami B, S.*, +, *TMECH Oct. 2021 2814-2817*

Patient rehabilitation
A New Ankle Robotic System Enabling Whole-Stage Compliance Rehabilitation Training. *Dong, M.*, +, *TMECH June 2021 1490-1500*
Active Disturbance Rejection Control for a Fluid-Driven Hand Rehabilitation Device. *Li, H.*, +, *TMECH April 2021 841-853*
Brain–Machine Interface Using Functional Electrical Stimulation and Motion-Related Cortical Potentials Identified by a Support Vector Machine. *Miura, S.*, +, *TMECH April 2021 1013-1021*
Design Principles for Compact, Backdrivable Actuation in Partial-Assist Powered Knee Orthoses. *Zhu, H.*, +, *TMECH Dec. 2021 3104-3115*
Human–Robot Cooperation Control Based on Trajectory Deformation Algorithm for a Lower Limb Rehabilitation Robot. *Zhou, J.*, +, *TMECH Dec. 2021 3128-3138*
Markovian Robust Filtering and Control Applied to Rehabilitation Robotics. *Escalante, F.M.*, +, *TMECH Feb. 2021 491-502*
Mech-Walker:A Novel Single-DOF Linkage Device With Movable Frame for Gait Rehabilitation. *Haghjoo, M.R.*, +, *TMECH Feb. 2021 13-23*
Mechanism and Controller Design of a Transfemoral Prosthesis With Electrohydraulic Knee and Motor-Driven Ankle. *Gao, S.*, +, *TMECH Oct. 2021 2429-2439*
Wearable Knee Assistive Devices for Kneeling Tasks in Construction. *Chen, S.*, +, *TMECH Aug. 2021 1989-1996*

Patient treatment
Blindly Controlled Magnetically Actuated Capsule for Noninvasive Sampling of the Gastrointestinal Microbiome. *Shokrollahi, P.*, +, *TMECH Oct. 2021 2616-2628*

Pattern classification
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Pattern clustering
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Payloads
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Peripheral interfaces
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Peristaltic flow
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Permanent magnet machines
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Permanent magnet motors
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Magnetically Levitated Linear Stage With Linear Bearingless Slice Hysteresis Motors. *Zhou, L.*, +, *TMECH April 2021 1084-1094*
Online Compensation of Mechanical Load Defects With Composite Control in PMSM Drives. *Kommuri, S.K.*, +, *TMECH June 2021 1392-1400*
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Static Position Sensor Bias Fault Diagnosis in Permanent Magnet Synchronous Machines via Current Estimation. *Kuruppu, S.S.*, +, *TMECH April 2021 888-896*
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Permanent magnets
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Magnetically Levitated Linear Stage With Linear Bearingless Slice Hysteresis Motors. *Zhou, L.*, +, *TMECH April 2021 1084-1094*

Permeability
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Phantoms
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A Surgical Robotic System for Treatment of Pelvic Osteolysis Using an FBG-Equipped Continuum Manipulator and Flexible Instruments. *Sefati, S.*, +, *TMECH Feb. 2021 369-380*
A Tubular Dual-Roller Bending Mechanism Toward Robotic Transurethral Prostate Biopsy. *Xiao, X.*, +, *TMECH Oct. 2021 2483-2494*
Automated Retinal Vein Cannulation on Silicone Phantoms Using Optical-Coherence-Tomography-Guided Robotic Manipulations. *Gerber, M.J.*, +, *TMECH Oct. 2021 2758-2769*
Robotized Catheter With Enhanced Distal Targeting for Peripheral Pulmonary Biopsy. *Kato, T.*, +, *TMECH Oct. 2021 2451-2461*

Photodetectors
UltraLow Noise, High Bandwidth, Low Latency, No Overload 6-Axis Optical Force Sensor. *Hosseinabadi, A.H.H.*, +, *TMECH Oct. 2021 2581-2592*

Photography
Design and Control of Soft Unmanned Aerial Vehicle “S-CLOUD”. *Song, S.H.*, +, *TMECH Feb. 2021 267-275*

Photoresists
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Physical instrumentation control
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PI control
Proportional-Integral Approximation-Free Control of Robotic Systems With Unknown Dynamics. *Zhang, C.*, +, *TMECH Aug. 2021 2226-2236*
Piezoelectric actuators
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A Monolithic Force Sensing Integrated Flexure Bonder Dedicated to Flip-Chip Active Soft-Landing Interconnection. *Tang, H.*, +, *TMECH Feb. 2021 323-334*
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Closed-Loop Range-Based Control of Dual-Stage Nanopositioning Systems. *Mitrovic, A.*, +, *TMECH June 2021 1412-1421*
Development and Test of a Two-Dimensional Stacked Terfenol-D Actuator With High Bandwidth and Large Stroke. *Chen, L.*, +, *TMECH Aug. 2021 1951-1959*
Development of a Nanopositioning Platform With Large Travel Range Based on Bionic Quadruped Piezoelectric Actuator. *Deng, J.*, +, *TMECH Aug. 2021 2059-2070*
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Piezoelectric devices
A Smoothed Raster Scanning Trajectory Based on Acceleration-Continuous B-Spline Transition for High-Speed Atomic Force Microscopy. *Li, L.*, +, *TMECH Feb. 2021 24-32*
Erratum to "A Smoothed Raster Scanning Trajectory Based on Acceleration-Continuous B-Spline Transition for High-Speed Atomic Force Microscopy" [Feb 21 24-32]. *Li, L.*, +, *TMECH June 2021 1700*
Structural Failure Detection Using Wireless Transmission Rate From Piezoelectric Energy Harvesters. *Jung, H.J.*, +, *TMECH Aug. 2021 1708-1718*
Piezoelectric materials
Structural Failure Detection Using Wireless Transmission Rate From Piezoelectric Energy Harvesters. *Jung, H.J.*, +, *TMECH Aug. 2021 1708-1718*
Tendon-Inspired Piezoelectric Sensor for Biometric Application. *Kim, H.*, +, *TMECH Oct. 2021 2538-2547*
Piezoelectric transducers
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Piezoresistive devices
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Pipelines
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Failure Monitoring and Predictive Maintenance of Hydraulic Cylinder—State-of-the-Art Review. *Shanbhag, V.V.*, +, *TMECH Dec. 2021 3087-3103*
Intelligent Vibration Control for Semiactive Suspension Systems Without Prior Knowledge of Dynamical Nonlinear Damper Behaviors Based on Improved Extreme Learning Machine. *Huang, W.*, +, *TMECH Aug. 2021 2071-2079*
Plates (structures)
Analytical Harmonic Method for Modeling High-Frequency Oscillation With Applications to Aircraft Piston Pump Vibration Analysis. *Li, L.*, +, *TMECH April 2021 918-929*
Pneumatic actuators
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A Two-Finger Soft-Robotic Gripper With Enveloping and Pinching Grasping Modes. *Liu, S.*, +, *TMECH Feb. 2021 146-155*
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Modeling and Analysis of Soft Pneumatic Network Bending Actuators. *Liu, Z.*, +, *TMECH Aug. 2021 2195-2203*
Sensing and Reconstruction of 3-D Deformation on Pneumatic Soft Robots. *Scharff, R.B.N.*, +, *TMECH Aug. 2021 1877-1885*
Topology Optimization of Skeleton-Reinforced Soft Pneumatic Actuators for Desired Motions. *Chen, S.*, +, *TMECH Aug. 2021 1745-1753*
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Polymers
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Nontarget-Based Measurement of 6-DOF Structural Displacement Using Combined RGB Color and Depth Information. *Lee, S.*, +, *TMECH June 2021 1358-1368*
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A Computational-Effective Field-Oriented Control Strategy for Accurate and Efficient Electric Propulsion of Unmanned Aerial Vehicles. *Bosso, A.*, +, *TMECH June 2021 1501-1511*
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A Novel Rotational Actuator With Variable Stiffness Using S-Shaped Springs. *Xu, Y.*, +, *TMECH Aug. 2021 2249-2260*
A Position Sensorless Torque Control Strategy for Switched Reluctance Machines With Fewer Current Sensors. *Gan, C.*, +, *TMECH April 2021 1118-1128*
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A Tilting-Rotor Unmanned Aerial Vehicle for Enhanced Aerial Locomotion and Manipulation Capabilities: Design, Control, and Applications. *Ding, C.*, +, *TMECH Aug. 2021 2237-2248*
A Visual Servo-Based Predictive Control With Echo State Gaussian Process for Soft Bending Actuator. *Cao, Y.*, +, *TMECH Feb. 2021 574-585*
An Output Feedback Based Robust Saturated Controller Design for Pavement Sweeping Self-Reconfigurable Robot. *Rayguru, M.M.*, +, *TMECH June 2021 1236-1247*

Analytical Design and Experimental Verification of Geofencing Control for Aerial Applications. *Ghaffari, A., TMECH April 2021 1106-1117*
Compliant Bistable Grippers Enable Passive Perching for Micro Aerial Vehicles. *Zhang, H.*, +, *TMECH Oct. 2021 2316-2326*
Design and Experimental Validation of a Novel High-Speed Omnidirectional Underwater Propulsion Mechanism. *Njaka, T.*, +, *TMECH Oct. 2021 2339-2349*
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Distributed Control Algorithm for Leader–Follower Formation Tracking of Multiple Quadrotors: Theory and Experiment. *Wang, Z.*, +, *TMECH April 2021 1095-1105*
Distributed Formation Control Using Fuzzy Self-Tuning of Strictly Negative Imaginary Consensus Controllers in Aerial Robotics. *Tran, V.P.*, +, *TMECH Oct. 2021 2306-2315*
Dynamic Modeling and State Estimation of Cable-Conduit Actuation During Interaction With Nonpassive Environments. *Buchanan, S.*, +, *TMECH Oct. 2021 2462-2471*
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Dynamic Torso Compliance Control for Standing and Walking Balance of Position-Controlled Humanoid Robots. *Li, Q.*, +, *TMECH April 2021 679-688*
Efficiency Optimization Strategy for Switched Reluctance Generator System With Position Sensorless Control. *Chen, H.*, +, *TMECH Feb. 2021 469-479*
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Identification of a Nonlinear Dielectric Elastomer Actuator Based on the Harmonic Balance Method. *Bernat, J.*, +, *TMECH Oct. 2021 2664-2675*
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Magnetically Levitated Linear Drive Using an Active Gravity Compensation Based on Hybrid Shape Memory Actuators. *Raab, M.*, +, *TMECH June 2021 1380-1391*
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Model-Free Control of Flexible Manipulator Based on Intrinsic Design. *Jiang, N.*, +, *TMECH Oct. 2021 2641-2652*
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Modeling and Motion Control of Industrial Tractor–Trailers Vehicles Using Force Compensation. *Zhao, H.*, +, *TMECH April 2021 645-656*
Needle Deflection Modeling and Preoperative Trajectory Planning During Insertion Into Multilayered Tissues. *Zhao, B.*, +, *TMECH April 2021 943-954*
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Point Stabilization of Nonholonomic Mobile Robot by Bézier Smooth Subline Constraint Nonlinear Model Predictive Control. *Zhang, Y.*, +, *TMECH April 2021 990-1001*
Position-Tracking Control of Dual-Rope Winch Robot With Rope Slip Compensation. *Yoo, S.*, +, *TMECH Aug. 2021 1754-1762*
Practical Fixed-Time Position Tracking Control of Permanent Magnet DC Torque Motor Systems. *Wu, Y.*, +, *TMECH Feb. 2021 563-573*
Quasi-Synchronization Control of Multiple Electrohydraulic Actuators With Load Disturbance and Uncertain Parameters. *Guo, Q.*, +, *TMECH Aug. 2021 2048-2058*
Robotized Catheter With Enhanced Distal Targeting for Peripheral Pulmonary Biopsy. *Kato, T.*, +, *TMECH Oct. 2021 2451-2461*
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Sliding-Mode-Disturbance-Observer-Based Robust Tracking Control for Omnidirectional Mobile Robots With Kinematic and Dynamic Uncertainties. *Jeong, S.*, +, *TMECH April 2021 741-752*
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Takagi–Sugeno Fuzzy-Based Robust $H\infty$ Integrated Lane-Keeping and Direct Yaw Moment Controller of Unmanned Electric Vehicles. *Guo, J.*, +, *TMECH Aug. 2021 2151-2162*
Tracking Accuracy Improvement Based on Adaptive Nonlinear Sliding Mode Control. *Tsai, W.*, +, *TMECH Feb. 2021 179-190*
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Vision-Based Cutting Control of Deformable Objects With Surface Tracking. *Han, L.*, +, *TMECH Aug. 2021 2016-2026*

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Reconstructing Walking Dynamics From Two Shank-Mounted Inertial Measurement Units. *Li, T.*, +, *TMECH Dec. 2021 3040-3050*

Zinc compounds
Robotic Prototyping of Paper-Based Field-Effect Transistors With Rolled-Up Semiconductor Microtubes. *Dong, X.*, +, *TMECH Feb. 2021 427-436*

Zoology
Curvature-Induced Buckling for Flapping-Wing Vehicles. *Sharifzadeh, M.*, +, *TMECH Feb. 2021 503-514*